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ABSTRACT

A comprehensive study of the vocational education needs, services, and funding in the State of Washington is described and documented in this report. The total study report was issued in two parts. Part One of the study, available in this issue as VT 021 097, summarizes the major findings and presents recommendations for improvement of vocational education in Washington State. This document, Part Two of the study, presents more detailed discussions of the various programs and recommendations. The largest sections of Part Two include the study model, vocational programs and their enrollments in the State of Washington and in the United States, work experience and vocational education, and employer viewpoints. Appendixes provide background data related to the study. (MF)

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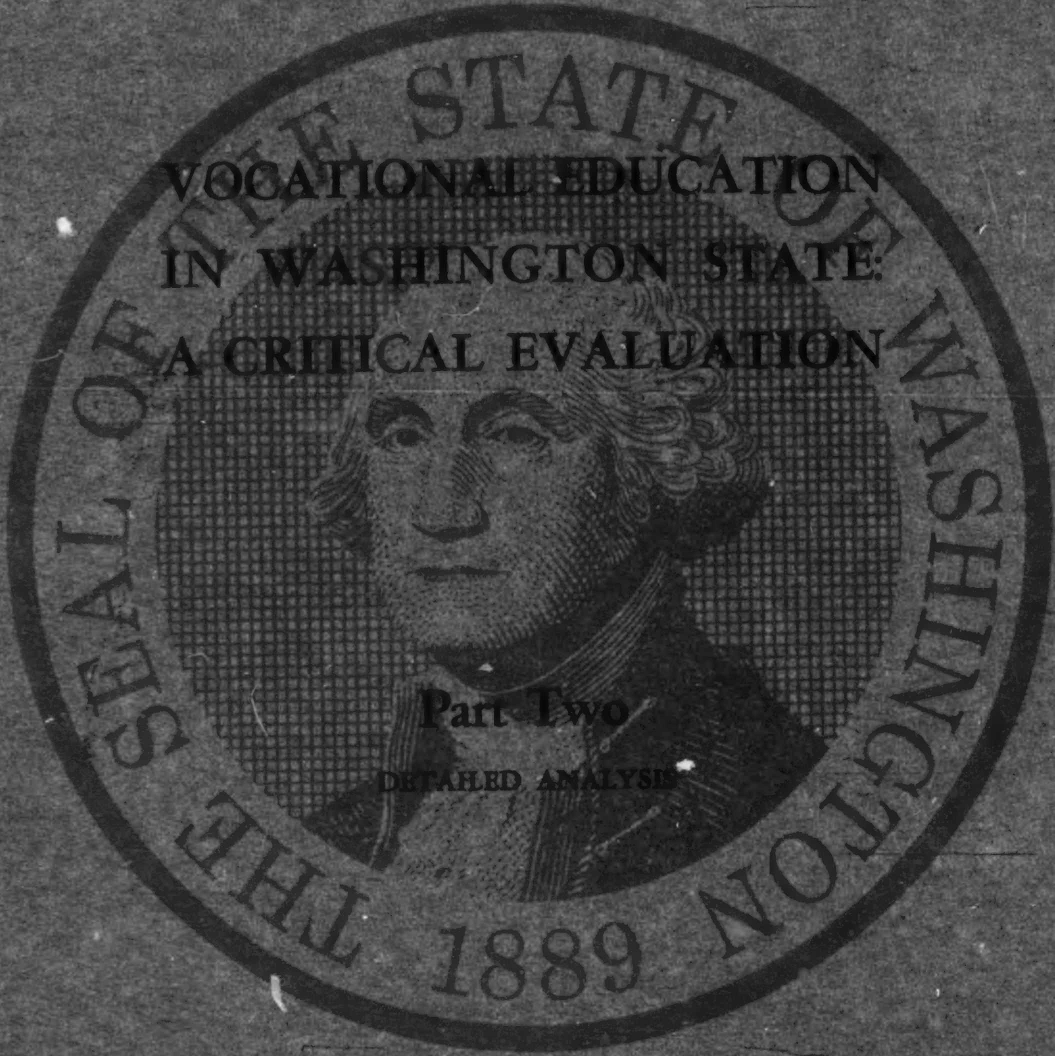
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1889

VOCATIONAL EDUCATION IN WASHINGTON STATE: A CRITICAL EVALUATION

Part Two

DETAILED ANALYSIS

STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION
THIRD REPORT
November, 1972

VT 021 095

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CHAPTER 1

DEVELOPING A STUDY MODEL

On July 16, 1971, the Steering Committee, established by the Coordinating Council for Occupational Education for the Senate Concurrent Resolution No. 23 (SCR-23) study, held its initial planning meeting. Membership of the Steering Committee consisted of representatives from each of the organizations specifically named in the Resolution and other related agencies. A complete listing of the Steering Committee membership is found in Appendix 1A.

The Steering Committee began its work by reviewing a list of legislative concerns prepared by the study coordinator. This list is included as Appendix 1B of this report and is organized around three key areas of concern -- vocational needs, delivery of services, and vocational funding arrangements.

Subsequent to this initial review of legislative questions, the study coordinator developed a comprehensive matrix of questions (or data requirements) relating to the three areas mentioned above. Space does not permit inclusion of this entire list of data requirements but suffice it here to say that much of the data requested in the listing was related to past and present enrollments in various vocational programs throughout the State. While the data required by the initial study model was clearly relevant to various concerns of SCR-23 and the legislative questions of Appendix 1B, the problems of locating the data were substantial. In numerous cases (e.g. dropout and education levels for non-working housewives and seasonal workers, number of unfilled seats in handicapped programs, and ethnic composition of enrollments by program), the data was simply nonexistent; and in others (e.g., number of counselors in each school district, practical arts programs and their enrollments by school district, number and type of inservice teacher training programs), the appropriate state agencies were unable to commit the time and resources to summarize the existing data sources.

These problems in data collection plagued the staff and Steering Committee throughout much of the study; and, as a means of partially overcoming the absence of hard data in many areas outlined in the initial listing of legislative concerns, the Bureau of School Service and Research (BSSR) at the University of Washington was contacted to assist in the collection and analysis of data related to the legislative questions in Appendix 1B. The BSSR staff began its task by presenting a slightly revised comprehensive study and analysis plan to the Steering Committee. This detailed plan is presented in Appendix 1C and a summary is included in Table 1.1a. The plan attempts to incorporate most of the legislative questions previously discussed and is built on the assumption that a comprehensive vocational education program includes pre-vocational orientation activities, actual experiences in the working world, and specific skills for entering the job market.

At its meeting on May 21, 1972, the Steering Committee discussed the Comprehensive Analysis Plan (Appendix 1C) and agreed to assist the Advisory Council on Vocational Education and its Executive Director in pulling together the data required in answering (or at least discussing) the many questions identified by the plan. At that same meeting, the Steering Committee was subdivided into two working groups -- an executive committee to review progress and interpret legislative intent and a data management committee to assist in the collection and assessment of data required to complete the SCR-23 study model. While the Steering Committee felt that the analysis plan presented in Appendix 1C represented an adequate reflection of legislative concerns, it was emphasized that the analysis of all questions raised in the plan was clearly beyond the time and resources available to the SCR-23 effort.

After considering this reservation as expressed by the SCR-23 Steering

TABLE 1.1a

SUMMARY OUTLINE OF COMPREHENSIVE ANALYSIS PLAN

A. NEEDS IN VOCATIONAL EDUCATION

1. Orientation and exploratory programs of exemplary nature.
2. Manpower trends in State and Nation.
3. Special programs as needed for assisting minorities and for handicapped persons.
4. Opportunities for work experience as a part of job selection and preparation.

B. SERVICES AVAILABLE

1. Existing orientation and exploratory programs.
2. Specific job skill training programs presently available.
3. Student demand and available programs.

C. QUALITY AND ADEQUACY OF SERVICES

1. Orientation and exploratory programs.
2. Discrepancies between job training, manpower needs and skill requirements.
3. Job placement (including specific category) of recent graduates.
4. Job performance of recent graduates.
5. Satisfaction of trainees with programs as designed.
6. Availability of programs to students desiring training.
7. Facility requirements to meet the needs of the next five years.
8. Staffing of vocational education programs.
9. Program evaluation and data collection needs.

D. FUNDING PROVISIONS FOR VOCATIONAL PROGRAMS

1. Present flow of Federal, State, Local, and foundation monies to vocational programs.
2. Cost differentials for types of programs in various delivery systems.
3. Funding distribution methods and their apparent effectiveness.
4. Adequacy of present funding levels in meeting needs.

E. ORGANIZATIONAL STRUCTURE FOR VOCATIONAL PROGRAMS

1. Present structure and relationships between various parts.
2. Alternative models for organization.
3. Possible proposed organization for the State and procedures for accomplishment.
4. Direction for future of vocational education in the State.

Committee, the Advisory Council on Vocational Education decided to proceed with the collection of all available data relating to the Comprehensive Analysis Plan. The Advisory Council also solicited the assistance of the BSSR in conducting a statewide survey of employer attitudes regarding vocational programs. (The results of the employer survey are summarized in Chapter 6 of this report.) Due to the financial limitations and time restrictions already mentioned, the Advisory Council was forced to conclude that several data collection procedures (including questionnaires to present students, recent graduates, and vocational education directors) were beyond the scope of the SCR-23 study. Hence several questions identified in the Comprehensive Analysis Plan of Appendix 1C are either not addressed in this report or are answered in only a very tentative manner. The answers to certain of these questions will require substantial changes in the approaches to data collection in those institutions delivering vocational services. Some suggestions for revising these data collection procedures are included in later sections of this report. It is doubtful that the substantial changes in data collection procedures required to answer various questions in the Comprehensive Analysis Plan can be accomplished without a significant increase in monies committed to evaluation and assessment of vocational programs. Measuring the quality and adequacy of vocational programs and services (as indicated in Part C of the Comprehensive Analysis Plan) requires a much more systematic follow-up effort than that which presently exists.

Before proceeding with the presentation and analysis of various sections of the SCR-23 study, some attention should be given to the definition of vocational education used throughout the SCR-23 study. Generally speaking, the definition agreed upon by the Steering Committee was taken directly from Engrossed House Bill #491 which states:

> Vocational education shall mean a planned series of learning experiences, the specific objective of which is to prepare persons to enter, continue in, or upgrade themselves in gainful employment in recognized occupations and homemaking, which are not designated as professional or requiring a baccalaureate or higher degree.

From the above definition, it is clear that the SCR-23 study was concerned with educational programs requiring something less than a baccalaureate college degree. It is also true that the entire program or set of learning experiences and not just that part dealing with specific job skills is to be considered germane to the SCR-23 study. Because entry into a gainful employment situation obviously presumes some degree of occupational exploration and because several legislative questions related to occupational awareness programs, the SCR-23 Steering Committee did include within its province programs of occupational exploration as defined in Engrossed House Bill 491.

Having established some common base of definition for vocational education used in the SCR-23 study, the Advisory Council on Vocational Education (which was charged with primary responsibility for data analysis) is pleased in the following chapters to present the findings resulting from the SCR-23 study. While much of the report represents simply a compilation of data and descriptive summaries presented by key state agencies and/or individuals, the Advisory Council on Vocational Education has attempted to assess the accuracy of all descriptive information and maintains full responsibility for the data interpretation and/or resulting recommendations.

APPENDIX 1A: MEMBERSHIP OF SCR-23 STEERING COMMITTEE

MEMBERSHIP OF SCR-23 STEERING COMMITTEE

Honorable Henry Backstrom
Member, Legislative Budget Committee

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State Director and Executive Officer, Coordinating Council for Occupational Education

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Director, Vocational Education, Superintendent of Public Instruction

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Administrative Director, L. H. Bates Vocational-Technical Institute, Representing Washington Vocational Association, VE-VR Study Committee

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Mr. Richard Sheridan
    Fiscal Analyst, Legislative Budget Committee

Mr. Lou Stewart
    Education Director, Washington State Labor Council, Representing Washington Vocational Association, VE-VR Study Committee

Mr. Lyle Tinker
    Executive Director, State Manpower Planning Council

APPENDIX 1B: LEGISLATIVE CONCERNS BASIC TO SCR-23 STUDY

LEGISLATIVE CONCERNS BASIC TO SCR-23 STUDY

The items as listed below were identified in published reports of various legislative committees. They are coded by source as follows:

[a]Legislative Budget Committee
[b]Joint Committee on Higher Education
[c]Joint Committee on Education

Needs (People)

1. What should be the extent of vocational counseling and guidance in the common schools, vocational institutes, and community colleges? (a)
2. Are vocational education trainees better able to obtain employment in a given field than those without such training? (b)
3. Are vocational education graduates initially placed in jobs for which they were trained in their vocational education programs? (c)
4. If vocational education graduates have changed jobs, is the new job in the area for which they were trained or closely allied to their area of job training? (c)
5. Are vocational education trainees able to perform better than those without such training? (b)
6. What is the graduate's view of the effectiveness of the training program in terms of preparing him for the job which he held subsequent to his completion of the training program? (c)
7. Does training in a particular sector of vocational education determine a vocational pattern for its graduates in their ensuing lives? (a) (c)
8. Does the absence of a more general education background limit the long term advancement opportunities of vocational education trainees? (b)
9. If so, does this have effect on longevity of such employees? (b)
10. What happens to dropouts from vocational education programs? (c)
11. Do college preparatory or transfer program students who experience failure avail themselves of vocational education offerings? (c)
12. What should be the relationship between vocational education and adult education? (a) (c)
13. Is there a distinction between vocational education, adult education, and continuing education? (b)

14. If so, what should be the relationship between them? (b)

15. To what extent should basic skills (reading, writing, and computing) be an integral part of vocational education programs? (a) (b) (c)

16. How does the continuous enrollment feature of some vocational education programs affect the trainees, i.e., is the "individual instruction" approach really better than scheduled progression approach? (b)

17. Is there competition between high schools, vocational-technical schools, and community colleges for the same students? (b)

Needs (Economic)

1. Are the types of courses provided really relevant to the market needs of business and industry? (b)

2. To what extent do current vocational education programs coincide with the manpower needs of the public and private sectors of the economy? (c)

3. What is needed to more accurately forecast manpower needs and to structure vocational education toward meeting these needs? (a)

4. To what extent do the private vocational schools fulfill labor demands within the state for particular occupations? To what extent do private and state vocational education activities produce a labor supply which meets the labor demand in any given field? (a)

5. How can vocational education most effectively assist in solving some of the state's social and economic problems? (a)

6. What is industry's view of the effectiveness of the training program? (c)

Delivery of Services

1. How can vocational education best serve the needs of all of the state citizenry? (a)

2. What board or boards should act as the policy-making body or bodies? (c)

3. What method of distribution would best meet the needs of vocational education? (b) (c)

4. Is there a distinction between vocational education, adult education and continuing education? (b)

5. What should be the relationship between vocational education and adult education? (a) (c)

6. Are existing vocational education facilities adequate for current programs and adaptable to new programs? Can inadequate facilities be renovated to meet existing programs or new programs? Is the location of existing facilities consistent with present and future population demands? (c)

7. In accord with programs recommended, what new facilities and locations must be acquired and built in order to serve the proposed needs? (c)

8. What new facilities and location would be required to meet recommended programs including costs and methods of financing? (b)

9. What existing sites and buildings now being utilized for other purposes could be acquired and utilized for vocational education purposes? (c)

10. Are particular types of educational institutions more effective than others in preparing students for the world of work? (c)

11. What types of vocational education programs and at what types of institutions should be encouraged and expanded? (a) (c)

12. What efforts should be made to avoid duplicating existing private vocational facilities in the same area offering public vocational programs through the state? (a)

13. Is utilization of existing facilities at or above optimum, or is there serious under utilization of some facilities? (b)

14. Should consideration be given to the alternative of a state tuition program or contractual arrangement whereby private vocational schools could meet some of the vocational needs of the state? (a)

15. What departmental organization would best coordinate the various state programs of vocational education to provide the maximum amount of benefit to the people of the state? (b)

16. What departmental organization and administrative relationship on the state level would best serve the needs of vocational education? (c)

17. How can planning for vocational education be improved to insure the avoidance of unnecessary duplication while still meeting the needs of the individual and of the labor market? (a)

18. What is needed to more accurately forecast manpower needs and to structure vocational education toward meeting these needs? (a)

19. What should be the relationship between vocational education and vocational rehabilitation? (a) (c)

20. What agencies should exist to promote cooperation and coordination between vocational education and vocational rehabilitation? (c)

21. Is the present relationship between state and local agencies administering vocational education the best type of organizational pattern? (b)

22. What should be the relationship between local and state agencies concerned with vocational education? (a) (c)

23. How should vocational education be organized and administered at the state level? (c)

24. How should vocational education be organized and administered at the local level? (a) (c)

25. Should vocational education at the local level be more under state supervision and control or less? (b)

26. Is the traditional operation of the vocational-technical institutes by the local K through 12 boards in the best interests of the people of the state, or would the state be better served if they were under either a community college district or some other state structure? (b)

27. Has the change to intermediate school districts interjected a change in existing relationships which must be considered? What change? (b)

28. What role, if any, should the intermediate school districts play in vocational education? (a) (c)

29. Is the existing relationship between vocational programs in the community colleges, vocational-technical institutes, and the common schools the best for the people of the state? (b)

30. What should be the relationship between vocational education programs in the community colleges, vocational-technical institutes, and common schools--including occupational skill centers? (c)

31. Is there competition between high schools, vocational-technical schools, and community colleges for the same students? (b)

32. How effective are present vocational programs and activities in meeting the state's goals and commitments? What are state's goals? (a)

33. What is the overall impact of Federal legislation upon vocational education in the state? (b) (c)

34. Does the state itself into federal programs hampering state flexibility for a minimum of state benefit? (b)

35. Is the federal programs relationship to the state programs analogous to the tail which wags the dog, as has often been charged? (b)

36. To what degree does federal legislation exert control over vocational education programs and the administration of these programs? (c)

37. Is compliance with the changing emphasis in vocational education at the federal level a wedge which further separates the vocational and academic communities to the detriment of the people of the State of Washington? What changing emphasis? (b)

38. What is the fiscal and program impact of federal monies upon the quality and quantity of vocational education? (a)

39. What is the fiscal and program impact of state funds and planning upon the quality and quantity of vocational education? (a) (c)

40. Is the state unnecessarily hindered in flexibility in order to meet Federal conformity requirements? (b)

41. Are the skill centers under Federal financing of the same quality level as state programs? (b)

42. If not, are there any steps which the state can take to change this? (b)

43. Is the comprehensive planning goal of the state diluted by vocational programs administered by other state agencies under various federal aid programs? (a)

44. What degree of flexibility is there within federal legislation for state programming? (a) (c)

45. Do state programs, in all instances, conform with federal legislation and if not, what discrepancies are there? (c)

46. Does the state avail itself of certain federal funds and/or programs which may not be of consequence to this state? (c)

47. Is there a need for certification of vocational education instructors? (a) (c) (b)

48. What is the minimum of instructional proficiency courses which should be required of vocational education instruction? (b)

49. To what extent, if any, should vocational education instructors be required to take courses in the liberal arts? (b)

50. To what extent should vocational education instructors be required to have teaching competence in the basic communication skills? (b)

51. To what extent should vocational education teachers be required to have teaching competence in the basic academic skills--reading, writing, and computing? (c)

52. What courses, if any, should be offered in the training of vocational education teachers? If so, at what type or types of institutions should they be offered and to what extent should vocational education teachers be prepared in the liberal arts? (c)

53. What are the existing vocational education teacher training programs; are additional programs needed? (b) (c)

54. Where should vocational education instructors receive their education? (b)

55. What programs now exist which afford training for vocational education teachers? (c)

Funding Arrangements

1. What is the fiscal and program impact of federal monies upon the quality and quantity of vocational education? (c)
2. Does the state take full advantage of all opportunities for Federal funds? (b) (c)
3. Is there conflict within the Federal requirements in order to receive the various federal program financing? (b)
4. What degree of flexibility is there within federal legislation for state programming? (a) (c)
5. What percentage of vocational education programs within the state are financed, in whole or in part, by the federal government? (b)
6. What is the fiscal and program impact of federal moneys upon the quality and quantity of vocational education? (a) (c)
7. What is the fiscal and program impact of state funds and planning upon the quality and quantity of vocational education? (a) (c)
8. Should the state distribution formulae be changed to take into account the higher cost of providing vocational education training? (b)
9. What method of distribution would best meet the needs of vocational education? (b) (c)
10. What priorities should be established for the distribution of monies for programs occuring at the various educational levels? (c)
11. What new facilities and location would be required to meet recommended programs, including costs and methods of financing? (b)
12. What is the cost of acquiring additional sites or extending present sites to meet future needs for facilities? (c)
13. Should consideration be given to the alternative of a state tuition program or contractual arrangement whereby private vocational schools could meet some of the vocational needs of the state? (a)
14. Should uniform fees be charged for similar programs? (b)
15. Should uniform fees be determined for similar programs in the various institutions and, if so, how should they be determined and by whom? (c)
16. How should institutions providing training for vocational education teachers be funded for these programs? (c)

APPENDIX 1C: COMPREHENSIVE ANALYSIS PLAN for SCR-23

WASHINGTON STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION
COMPREHENSIVE ANALYSIS PLAN
For SCR-23

For The Purpose Of This Plan Vocational Education Is Viewed As:

1) Orientation to the working world
2) Actual experiences in the working world
3) Specific skills required for the working world

Area of Concern	Data Required	Data Source	Collection Method
A. NEEDS IN VOCATIONAL EDUCATION			
1. Orientation and Exploratory Programs of Exemplary Nature.	Descriptions and program listings already available.	CCOE, SPI, General Literature	Interview with agency administrator. Reading of literature
What programs of prevocational nature show promise?			
What elements are characteristic of such promising programs?			
What training is required to accomplish these programs?			

Area of Concern	Data Required	Data Source	Collection Method
2. Manpower Trends in State and Nation.	Trends by industry and job category	Bureau of Labor Statistics, U. S. Department of Labor Employment Security Department.	Review material on labor market needs. Interviews with labor market analysts.
What areas are likely to see expansion (state and national)?			
What areas are likely to decline (state and national)?			
Upon what assumptions are projections based?			
Are the predictions reasonably reliable and how might they be made more so?			
3. Special Programs as Needed for Assisting Minorities and for Handicapped Persons.	Programs and enrollments for both groups.	CCOE, SSCCE, SPI.	Study Model. Interviews with agency administrators
Why are programs and/or services for disadvantaged and handicapped needed?			
What special programs exist at present to assist disadvantaged groups and handicapped?			
What are actual enrollments in the disadvantaged and handicapped programs?			
4. Opportunities for Work Experience as a Part of Job Selection and Preparation.	Theoretical arguments for experience as part of decision.	General literature.	Reading.
What is the rationale for work experience as part of job selection and preparation?	Student views on job experience.	Survey of student attitudes.	Questionnaires to present students and recent graduates

Area of Concern	Data Required	Data Source	Collection Method
A. 4. Continued			
What percentage of students would find job experience useful as part of selection and/or preparation?	Employer resistance to job experience.	Employing agencies.	Interviews and/or questionnaires to employers.
Barriers to expanding job experience programs?			
B. SERVICES AVAILABLE AND THEIR APPARENT DEMAND			
1. Existing Orientation and Exploratory Programs.	Listings of programs now in operation.	CCOE, SPI	Interviews with Administrators
What programs exist at present?			
How do these programs generally compare with exemplary models?	Inventory assessing program components.	Survey of common school vocational directors and community college personnel.	Questionnaires to vocational leaders at common school level.
2. Specific Job Skill Training Programs Presently Available.	Listing of enrollments in all job skill programs.	CCOE, SPI, SBCCE.	Study Model. Interviews with agency administrators.
What programs exist in common schools, vocational technical institutes, community colleges, etc.?			
What are enrollments in programs by sex, race, prior education, etc.?			
3. Student Demand for Available Programs.	Listing of excess capacity in all major program areas.	CCOE, SPI, SBCCE.	Study Model. Interviews with agency administrators.
What enrollment capacity in various programs is unused?			

Area of Concern	Data Required	Data Source	Collection Method
B. 3. Continued			
Would this capacity likely be filled if in a different location?			Questionnaire to all vocational leaders.
In what courses or areas does student demand apparently exceed enrollment capacity?			
4. Work Experience Availability in Various Programs.	Listing of work experience programs.	CCOE, SPI, SBCCE.	Interviews with agency administrators.
Which of the job skill and/or exploratory programs incorporate opportunities for paid or unpaid work experience?			Questionnaire to all vocational leaders.
What percentage of students are working or have worked at jobs related to career plans?			Questionnaires to present students and recent graduates
C. QUALITY AND ADEQUACY OF SERVICES			
I. Orientation and Exploratory Programs.	None	-	-
To what extent do available programs match those judged to be exemplary in nature?	(Analyze previous data)		
What percentage of students participate in the available programs?			

Area of Concern	Data Required	Data Source	Collection Method
C. 2. Discrepancies Between Job Training and Manpower Needs.	None		-
To what extent do we seem to be training for obsolete or non-existent job areas?	(Analyze previous data)		
What areas of job training need expansion?			
To what extent are job specifications for existing positions changing and do programs reflect these changes?			
3. Job Placement (including specific category) of Recent Graduates.	Records on recent graduates.	CCOE, SBCCE, SPI.	Interviews with agency administrators
What proportion of graduates seek and and gain immediate employment?	Policies of major employers of non-professional personnel.	Major employers.	Interviews and/or questionnaires to employers.
4. Job Performance of Recent Graduates.	Views of major employer agencies.	Employer agencies.	Interviews and/or questionnaires to employers.
How do employers rate graduates of vocational programs?			
What specific areas of weakness do employers identify?			
Are these weaknesses most likely corrected through school-based or on-the-job type programs?			

Areas of Concern	Data Required	Data Source	Collection Method
5. Satisfaction of Trainees with Programs as Designed. How valuable was (or is) the training program and its various components such as skill training, on-the-job experience, communication skills, etc? Does the training help students gain jobs? What specific program changes are needed to improve programs as presently offered?	Views of recent graduates and/or present students.	Survey of student attitudes.	Questionnaires to present students and recent graduates.
6. Availability of Programs to Students Desiring Training. Are capable students unable to obtain needed training? What factors prevent some students from obtaining training for jobs? Are disadvantaged students unable to gain training because of financial problems? Would relocation of certain programs make them more accessible to students?	Employer views as to apparent needs.	Employing agencies.	Interviews and/or questionnaires to employers. Questionnaires to general student population. Interviews with disadvantaged students Interviews with unemployed youth. Interviews with SOIC leaders, etc.
7. Facility Requirements to Meet Needs of Next Five Years. What facility expansion will likely be required?	Listing of programs in planning phase and assessment of their need.	CCOE, SBCCE, SPI.	Interviews with agency administrators.

Areas of Concern	Data Required	Data Source	Collection Method
C. 7. Continued			
What facility relocation is advised?			
To what extent can on-the-job experience offset the need for additional facilities?			
8. Staffing of Vocational Education Programs.	Views of vocational leaders.	CCOE, SBCCE, SPI.	Questionnaires to all vocational leaders.
Are present certification standards appropriate to the needs of State?	Employer views.		
Are valuable vocational programs lost to students because of scarcity of needed staff?	Views of students.		Questionnaires to present students and recent graduates.
What kind of training is most important for vocational personnel?			
Do vocational programs make appropriate use of practitioners?			
9. Program Evaluation and Data Collection Needs	Views of legislators and vocational leaders.	CCOE, SBCCE, SPI.	Interviews with agency administrators.
What data not presently collected is needed to continually assess the quality of services?			
What costs will be required to obtain such data?			
Who should be charged with continuous evaluation?			

Area of Concern	Data Required	Data Source	Collection Method
D. FUNDING PROVISIONS FOR VOCATIONAL PROGRAMS			
1. Present Flow of Federal, State, and Foundation Monies to Vocational Programs. How are monies channeled to the various delivery systems? Present level of federal and state support throughout the system? How much private money is specifically committed to vocational programs? What available federal money is not currently being used?	Complete financial data for 1971-72 (or 1970-71).	CCOE, SBCCE, SPI.	Study Model. Interviews with agency administrators.
2. Cost Differentials for Types of Programs in Various Delivery Systems. How do costs for various vocational programs differ? Are costs at one level significantly different than costs at other levels? What are the reasons for cost differentials?	Complete financial data by program for 1971-72 (or 1970-71).	CCOE, SBCCE, SPI.	Study Model. Interviews with agency administrators.
3. Funding Distribution Methods and Apparent Effectiveness. What agencies handle the distribution of funds?	Understanding of present mechanisms for funding.	CCOE, SBCCE, SPI.	Interviews with agency administrators.

Area of Concern	Data Required	Data Source	Collection Method
D. 3. Continued			
Do these agencies distribute funds with a proper balance of administrative supervision and system efficiency?			
How could the funding distribution be simplified without losing needed control?			
4. Adequacy of Present Funding Levels in Meeting Needs.	None	-	-
What job training expansion needs will need additional funds?			
What present programs require additional funding to more adequately meet needs?			
What facility and equipment expansion is needed in the near future?			
E. ORGANIZATIONAL STRUCTURE FOR VOCATIONAL PROGRAMS.			
1. Present Structure and Relationships Between Various Parts.	Understanding of present organization for vocational education.	CCOE, SBCCE, SPI.	Interviews with agency administrators.
What are the present organizations involved in vocational programs and how do they overlap in terms of function?			
Is there unwarranted competition between the various organizations?			

Area of Concern	Data Required	Data Source	Collection Method
E. 2. Alternative Models for Organization.	Evaluation of selected alternatives.	CCOE, Advisory Council.	Discussions.
What are the perceived advantages and disadvantages of alternatives to the present system?	Awareness of alternatives used in other states.	Other state vocational agencies.	Questionnaires and/or interviews with leaders from other states.
What organizational formats have been effective in other states?			
3. Possible Proposed Organization for Washington State and Procedures for Accomplishment.	Awareness of political reality affecting organization of vocational programs.	Legislators, leaders in vocational education.	Interviews and/or discussions with appropriate persons.
Considering all factors, what alternatives to the present organization would be desirable?			
How can such alternatives (or simply modifications in the present system) be implemented?			
4. Directions for Future of Vocational Education in Washington.	None	-	-
What are the major program, funding, and organizational changes needed in the future?			
What are areas of data collection needed for more adequate and continuous evaluation?			

CHAPTER 2

ORIENTATION AND EXPLORATORY WORK IN CAREER EDUCATION

For approximately 60 percent of our young people today the high school serves as their only transition to the world of work. Even for a large number of the 40 percent continuing on to some kind of formal post-high school training before entering the world of work, the direction for a future career is at least tentatively established by the time they leave the secondary school. Yet, large numbers of students in both groups continue to plot their career plans with a minimum of background information and/or experience related to available vocations. As one example, a group of high school seniors in Flint, Michigan were recently asked to describe their future vocational plans. Over 50 percent of the vocational choices of the several thousand respondents were limited to just sixteen occupations.[1]

This and other similar evidence relating to the limited occupational awareness of young people has resulted in an increased federal commitment to occupational awareness programs, particularly at the elementary and secondary school levels. As early as 1967 in Washington State, the Coordinating Council for Occupational Education recognized the need for early awareness of career opportunities and launched Project NEED (renamed Project WAVE -- What About Vocational Education?). This project consisted of a series of continuing workshops designed to provide school staff personnel with realistic information about the opportunities that exist in the world of work and to affect change in the persistent attitude in America that a college degree is the only guarantee of success in the occupational world. The workshop activities associated with this project led directly to the development of career awareness programs in a number of school districts and colleges throughout the state.

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[1] "Insights into the World of Work", The Community School and Its Administration, July, 1971, p.3.

A listing of sample career awareness programs as currently operating in Washington State has been included in Appendix 2A of this report. This listing includes only a sampling of the programs currently in operation in Washington State and there is no question but what the recent national concern for career education will lead to extension of similar programs into even more districts and schools in the coming years.

Already, the Seattle Public Schools has launched an extensive Career Education Awareness program at the elementary level, committing approximately $21,800 to teacher training programs. In the summer of 1971, the Seattle District compiled an extensive career education handbook, complete with suggested learning experiences and resource materials for each of the grades K-6. Other common school districts, some of which are included in the listing of Appendix 2A, are using a combination of federal, state, and local funds to expand their career awareness programs.

As one example of a quality career awareness program, supported by Part D-P.L.90-576, we might look at the efforts being made in the South Kitsap School District #402. The Occupational Opportunities for Life program, currently in its second year, involves a systematic introduction to the world of work in grades 5 and 6. An instructor counselor has been added to the regular elementary school staff. This person coordinates teacher inservice training and field trip activities and assists in obtaining community resource people for classroom presentations. Recognizing that direct observation and interaction with persons filling a particular career position is often preferable to activities in the formal classroom setting, the Occupational Opportunities for Life program in South Kitsap includes in-depth observations on the junior high level. Students are permitted under this plan to spend time in places of business in the community to observe firsthand the employees in their working environment.

This same emphasis upon direct observation and experience represents a key element of the special mini-term program at Tacoma's Stadium High School. In a project supported jointly by Title III, ESEA and Urban Rural Racial Disadvantaged funds, Stadium High School is placing approximately one-third of its students in non-paying job observation situations during the month of January each year.

Similar job observation and experience programs are being conducted at Mariner High School in the Mukilteo School District (in connection with the National Association of Secondary School Principals Model School Project) and at Castle Rock High School (in connection with its open concept school project supported by Title III, ESEA). In both cases, students have responded enthusiastically to the increased opportunities for direct observation of the working world.

While most students have begun to make at least tentative career choices at the time of completing grade 12, opportunities for increased job and career awareness should also be provided in the colleges. Although most colleges in Washington State offer some course work related to general career and job placement possibilities, two specific projects recently funded under the exemplary funding program (Part D-P.L.90-576) merit special consideration in this respect. The first, a program on "Vocational and Career Exploration for Community College Students" at Bellevue Community College, is designed to permit expansion of a college credit course in vocational exploration. The program includes the development of resource units relating to occupational information and involves each student in relating his own self-assessment to job availability in the immediate community. Each student establishes a contract of learning experiences related to his own needs and level of interest in the occupational area. A second program, the Occupational Information Access System at Clark College, holds considerable promise for individualizing the expansion of occupational awareness on the college level. The "Occupational Information

Access System" has been developed by the U.S. Department of Labor, the State of Oregon Employment Division, and The University of Oregon at Eugene. It provides detailed job information through a computerized retrieval system. In its initial stages, the project involved the installation of a remote terminal on the Clark College campus, whereby any person is able to obtain current occupational information on a local basis. A student answers a short questionnaire and, on the basis of his answers, the machine prints out information on several areas or clusters of occupations that appear appropriate. It then prints out current job descriptions, requirements, training opportunities and employment opportunities for the specific programs the student is interested in. This same system also serves students referred for counseling by other agencies in the Vancouver, Washington area.

Hopefully, the brief descriptions of career awareness as provided in the SCR-23 Report will convince the reader that some significant efforts are being made in Washington State to expand orientation and exploratory work, particularly in the common school system. While no systematic effort to assess the availability and quality of such programs was possible within the limited time and funding of SCR-23, it is evident that numerous common school districts are beginning to expand awareness offerings for their students. When asked to define those factors required for an adequate career awareness program, Dean Wagaman, Director of the Division of Program Development, Washington State Coordinating Council for Occupational Education, suggested the following five concerns:

1. Interdisciplinary approach by school staff

   Any program designed to expand awareness of vocational and career opportunities obviously requires consideration of a wide variety of learnings from the various subject matter disciplines. An effective career awareness program depends upon a teacher's being able to point out job and career implications of these various subjects or disciplines. Unless teachers are willing to emphasize the broad applications of subject matter and to seek out vocational applications inherent in their particular subject area, there is little hope of expanding student awareness of career opportunities.

2. Integration of career awareness material and information into the existing curriculum

Those schools initiating programs in career awareness seem to achieve greater success when such programs are integrated with the existing curriculum of the school. Not only does such integration force the involvement of the entire teaching staff but it also tends to lessen the possibility of further fragmentation of the school program. A separate course in occupational awareness tends to be viewed by students as a rather artificial experience; and, unless the awareness program pervades the entire curriculum, it tends to be viewed by many teachers and parents as just another intrusion.

3. The desire to try a new and more meaningful approach to teaching

Emphasizing career implications for school learning requires a willingness on the part of the teaching staff. Few of our present teachers receive specific training in areas of job availability and job availability itself represents a rapidly changing scene in American society. Unless teachers at all levels of our educational system become convinced that awareness of careers is an important goal of our school programs, we have very little hope in expanding such opportunities. The preliminary success of Project WAVE (What About Vocational Education?) provides hope that many teachers can be encouraged to see the importance of developing a new approach or emphasis in our educational system.

4. Administrative support for career awareness programs

We have ample evidence to suggest that a sympathetic administration can do a great deal to encourage staff acceptance of a new idea in public education. Many of the career awareness programs as listed in Appendix 2A came into being as a result of support from school superintendents and principals in the common school systems of Washington State. Much of the success in expanding these programs throughout the State will depend upon a supporting environment created by school administrators.

5. The use of community resources

No attempt to expand career awareness in our various schools and colleges can be successful without a serious commitment of community resources. The formal school environment can be used as a base for important information on jobs and can be used to teach certain skills required in the world of work. Becoming familiar with the full range of jobs available in the years ahead, however, will require a much greater degree of interaction between school and community. Not only will community resources, including parents, business, industry and labor, be used within the context of the school; but students will be required to observe first-hand the various job possibilities in their respective communities. Until this closer interaction between school and community is achieved, we will have very little hope of providing greater relevance within our educational system.

Expansion of career awareness programs fulfilling these five conditions will obviously require the support of many elements of our educational system. Not only will we need continued state and federal government support for teacher training and curriculum development but the local school districts and colleges will have to adopt a philosophical commitment to occupational awareness as a vital part of the school curriculum. Certain local funding sources will be required to support this important commitment to emphasizing elements of the curriculum most closely related to jobs and career opportunities.

Having described several exemplary career awareness programs and isolated the critical components of these same programs, the question might be asked as to what percentage of students in our public common school system are provided a systematic orientation to career opportunities at some point in their education program. While precise estimates relating to this question are impossible (due to the absence of any systematic evaluation program within the State), it has been estimated that most of the large and a considerable number of the smaller districts in the state have implemented specific programs related to career awareness and orientation areas. Despite this somewhat limited adoption of specific programs designed to increase career awareness, it might be appropriate to conclude this section of the report by mentioning several promising developments at the state level which are designed to provide support to the expansion of career awareness programs.

1. The various project WAVE (What About Vocational Education?) workshops have been conducted over the past few years in all sections of the state. These 25 workshops involving approximately 800 teachers, counselors, and administrators have encouraged the integration of career education and career development goals into the regular school curriculum. Several of the projects listed in Appendix 2A were developed by participants in these Project WAVE workshops.

2. As part of an overall occupational information system for the State of Washington, the Coordinating Council for Occupational Education (CCOE) is

supporting an effort to develop a Washington State inventory of work opportunities. This inventory, known as Vital Information for Education and Work (VIEW), has been developed through a special grant to the Yakima School District #7. At the present time, approximately 220 separate occupations are included in this micro-film system available to school districts at no cost. It is estimated that 40 percent of the school districts in the State of Washington are presently utilizing the new program as part of their occupational awareness system.

3. In August, 1971 a statewide workshop in Olympia was held on developing individualized instructional packages on communication skills for career education. A similar conference, involving junior high school teachers was held in August, 1972 to construct a suggested guide for developing communication skills for junior high school students. Under the supervision of the State Supervisor of Language Arts, these workshops were directed to the development of learning packages to be used as part of the regular instructional program in various schools throughout the state. Titles of certain of the learning packages developed as a consequence of these workshops included "Is Your Bag Sheet Metal?", "Hunt for Buried Jobs", "Why Work?" and "Business Letters". While the extent of use of these various learning packages is unknown, it is at least likely that those teachers attending these workshops have found certain of these units to be a useful means of expanding occupational awareness in their respective classes.

4. As a result of activities related to Project WAVE (What About Vocational Education?) the State Coordinating Council for Occupational Education has developed a resource book entitled Career Awareness Programs for the Elementary School. This resource book provides suggestions for classroom teachers who have looked ahead somewhat fearfully in developing career awareness programs. It has been used at several state conferences over the past year and several

school districts have found it helpful in implementing their own programs in career awareness. Specific suggestions for curriculum content are included for each of the grade levels K-6 and an extensive list of resources is provided as part of the resource book. This fall a more detailed curriculum guide (based upon field test evaluations of 22 school districts) for integrating career awareness into the common school program in the State of Washington became available to districts. The extent of use of this later document is, of course, unknown at this time.

5. Approximately 500 counselors from the common school and community college levels have been trained in the use of the GATB (General Aptitude Test Battery). As a result of this training, students are able to compare their aptitudes with those of successful workers in the various occupational fields. The State Coordinating Council for Occupational Education administers this program and conducts workshops as part of an agreement with the U.S. Department of Labor. Because of this program, vast numbers of students are potentially able to make more accurate assessment of their occupational interests and aptitudes.

APPENDIX 2A: CAREER AWARENESS PROGRAMS IN THE STATE OF WASHINGTON

CAREER AWARENESS PROGRAMS
IN THE STATE OF WASHINGTON

A SAMPLING - GRADES K-14

WASHINGTON STATE
COORDINATING COUNCIL
FOR OCCUPATIONAL EDUCATION
216 Old Capitol Building
Olympia, Washington 98504

ERNEST G. KRAMER, DIRECTOR
of Vocational Education

DEAN F. WAGAMAN, DIRECTOR
Program Development Division

RONALD G. BERG, SUPERVISOR
Vocational Guidance and Counseling Section

November, 1971

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
1	Walla Walla College Place: Davis School	Brings to class occupational awareness via visitors, reading and writing about USES "I Want To Be" books -- incorporated in curriculum all year.		Ralph Baker, Principal Mrs. Sandra Burt, Teacher
1	Seattle Hughes Elementary	Class Store - - - - - - - - - "Pick up Sticks" game - to develop awareness of tools	Part of career education project - Grades K-12. Hughes - Denny - Sealth Schools	Mrs. Dorothy Christianson, Principal. Mrs. Mary Hinds, teacher. Mr. Tom Hodgson, Director, Vocational Education. or Jim King, Occupational Infor. service coordinator, Occupational Education Task Force
1-6 & Special Education	Spokane Whitman Elem.	World of Work Grades 1-6	Teachers elected to spend monies on career awareness rather than reading projects - teacher-initiated. Planned jointly by teacher, parents, and members of business and industry.	Dr. Homer Mattson, Director, Voc. Ed. Mr. John Lancaster, principal Mrs. Barbara Wylder, counselor and project director
K-6	Puyallup School District	Career Education through speech services	Changed speech therapy classroom into "employment agency". Developed speech therapy job game.	Mrs. Irene Nordstrom, speech therapist or Mr. Reuben Stueckle, Director, Voc. Ed.
K-6	Pasco - Robert Frost Elem.	Interdisciplinary approach to career education	Complete curriculum guides developed.	Mr. Merle Locke, Principal

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
K-6	Tri-city vocational cooperative	Interdisciplinary approach to career education	Developed with small grant by involving educators in a series of Saturday workshops.	Mr. Leslie R. Adams, Director, Tri-city Voc. Ed. Coop, Pasco, or Mr. Howard Parkhurst, Project Motivation, Pasco
K-6	Renton - Lakeridge Elem.	Career Fair - one week	Total school involvement - parent resource speakers - others	Mr. Dury Fox, Director Allied Arts Karen Matthews, Counselor Barry Galvin, 6th George McPherson, Principal Roy Graham, 6th
Elem. Special Ed.	Grandview: Arthur Smith Elem.	Music and relations to jobs Special Ed.	Job awareness through music	Ruth Thompson, Teacher
3	Seattle - Hughes	Interdisciplinary approach to career ed.	"Hands on" experiences study of economic and industrial community.	Ethel Chisholm, teacher
3	Puyallup	Interdisciplinary approach to career ed.	Three-week unit on hospitality industry. Planned, financed, prepared, and served "dinner" to parents. Active parent volunteer works with teacher all year.	Richard Erskine, Principal Mrs. Mary Rawlings, teacher
3	Puyallup - Stewart Elem.	Typing	Taught by parent volunteer.	Mr. Erskine
3, 4, 5, 6 & 11 & 12	Renton High and students from Hillcrest Elem.	Career education. Students teaching students.	Allied Arts students acting as counselor/teacher aides to elem. students. "Hands on" experience on elem. children in allied arts class in high school - welding, foundry, electronics, plastics, art. Home Ec - Business and Office	Mr. Charlie Moore, counselor, Renton Hi, or Mr. John Hightower, prin., Hillcrest Elem.

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
4, 5, 6	Puyallup - Stewart Elem.	Sewing - Clothes construction - modeling	Taught by parent volunteer	Mr. Erskine
4, 5, 6	Puyallup - Stewart Elem.	Workshop: Wood, Elect., Painting	Taught by parent volunteer, student "teacher aid", and teacher.	Mr. Erskine
4	Yakima McKinley Elem.	Career Education through Social Studies all year	Role playing and many "career games"	Mr. Ernest Mitchell, Principal, or Mrs. Evelyn Huza, teacher
4	Yakima Robertson Elem.	Interdisciplinary approach-career education	Creative activities, especially through language arts and music	Mr. Dolmar Cherrington, principal, or Mrs. Phyllis Howard, teacher
5	Walla Walla: Washington Elem.	Interdisciplinary approach to career education	Developed units, starting with a glass of milk. Includes concept development of process, production, job families and specific jobs. Field trips, speakers, etc.	Mr. Gene Frank, principal; Miss Norma Grudzinski, teacher.
5-6	Kent schools	Project Move	Discovery that elementary students are making "career" selections at the 3rd & 4th grades. Prime influence - television. Led to interdisciplinary approach to career at Kent.	Mr. Tom Straka, Director, Vocational Education.
5	Toppenish Mt. Adams Elem.	Interdisciplinary approach to career ed.	Highly creative A-V material; Relates career ed. and spelling	Mr. Dean Bergevin, prin. Mrs. Marcia Field, teacher
5-6	Vancouver 3 out of 19 elem. schools involved	Elem. world of work; Mobile lab unit	Use of career ed. to assist teacher in her "Gen Ed" program "Hands on" experience.	Mr. James Brooks, Director, Voc. Ed., or Mr. Walt Skalicky, Industrial Ed Spec.

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
5-6 (with K-4 involvement)	Vancouver Minnehaha Elem.	Occupations Fair	Fifth and sixth graders were the initiators. They "taught" other children, grades K-6, a "spinoff" activity of "Mobil Career Lab" involvement, "career families" concept building.	Bob M. Calvert, Principal Miss Donna Quesnell Don Bridges Mrs. Ardith Bush
5-6	Renton, Hillcrest Elem.	Elementary Career Awareness, a period a day - second semester.	Teacher initiated. Two specialists hired second semester by monies negotiated by Renton Ed. Assn. and the Renton Board.	Mr. Dury Fox, Director, Allied Arts, or Mr. John Hightower, principal
6	Zillah Zillah Elem.	Keast Komic Book Koup (KKBK)	Started a cooperation to teach an understanding of our business and industrialized society.	Mr. Wayne Harrold, principal Dale Keast, teacher
6	Puyallup Maplewood Elem.	Class structured to reflect the business, industrial, political society in which we live.	Everything in class is "owned" by the students. Goods and services must be purchased. Career boxes in room to further career awareness.	Lowell Brobers, principal Mr. Ed Trotter, teacher
6	Toppenish Mt. Adams	Students make report on job - requirements, etc. research on specific jobs (Guest speakers)		Mr. Dean Bergevin, principal Mrs. Ruth Graber, teacher
7	Toppenish Junior Hi	Skit on How to Get a Job - students wrote it.	Role playing, "bad" and "good" examples of job applicants.	Mr. Lowell M. Smith, principal. Mrs. Jane Davis, teacher
6	Seattle - Hughes Elem.	Interdisciplinary approach to career education	Occupations on ecology, woodworking, and construction, taught to boys and girls by para-professional	Mrs. Dorothy Christianson or Gary Wollaston, teacher

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
6, 7, 8	Renton; also Highline	Title III funded project	Project Versatility; "Career" Board"; Individualized programmed instruction	John Lavender, Director or Bill Guise, Asst. Director
7, 8, 9	Kent Jr. High	Industrial Graphics Communications	Students teach students. Class structures like industry. Superintendent, Foreman, Journeyman, operators, apprentices. (Elective)	Mr. Tom Straka, Director, Voc. Education, or Mr. Orville Brown, teacher
9	Highline - Occupational Skills Center	"You and the World of Work"	Parents and students gave of their time after school hours for career information and field trips. Evaluation showed significant change in awareness of vocational education opportunities in high school (Occupational Skills Center) - other interesting results.	Ben A. Yormark, Dr. Ben A. Yormark, Director, Voc. Ed.
10, 11, 12	Spokane Public Schools	Locally developed TV productions of specific jobs.	Played and used during homeroom period.	Mr. Ted Runberg, Director, Project Scope.
9-12	Yakima Public Schools	Project VIEW	Localized VIEW deck. District developed related "Learning packages".	Mr. Floyd Winegar, Director, Upper Yakima Valley Voc. Ed Coop or Mr. Gary Dietzen, Project VIEW Director, Eisenhower High School
7, 8, 9	Seattle - Denny Junior High	Hughes-Denny-Sealth program	Denny Jr. Hi - mini courses - in place of role room. Occupational awareness taught in all classes.	Mr. Lloyd Comstock, principal
9-12	City of Kent	"Know and Care"	Counselors refer students to "Know and Care" coordinator. Primarily a project of the Kent Chamber of Commerce.	Mrs. Barbara Calhoun, coordinator, Kent Chamber of Commerce, or Mr. Tom Straka, Director, Vocational Education

GRADE(S)	LOCATION	ACTIVITY	OF SPECIAL INTEREST	PERSON(S) TO CONTACT
10-12	Prosser High	"Youth Craftsman"	Youth Craftsmen - IA & B&O team. Operate a company; produce and market a product. A joint project of industrial arts class and members of the Future Business Leaders of America Club.	Mr. Ernest McKinnon, prin. Mr. Mike Trainer, IA Mrs. Lois Ott, B&O
10-12	Walla Walla High	Job visitations	Like "Know and Care", but school-based. IA project	Wilbur Boschker, Ray Polley, teachers
10-12	Puyallup Rogers High	Program "34"	Students designing career center.	Mr. Fred Mertlich, counselor
12	Puyallup Senior High	Career Center - library	Unit on jobs - through English resume; job interviews; English curriculum	Mrs. Loraine Friberg, English chairman
11-12	Tekoa Sprague Reardan Chewelah Colville	Project Move	Use of community college students to inform high school students about post-secondary tech. voc. programs. "Hands on" experiences.	Spokane Falls Community College, Robert D. LaLonde
High School Special Education	Walla Walla	Special Ed. students and career education.	Special ed provides practical experience - ages 15-21. Boy at cleaners - places on job - salaried and school credit. - - - - - - - - - - - - - - - Those not placed given experience DO for special ed - four-year activity.	Mr.Fred Spoleder

CHAPTER 3

MANPOWER REQUIREMENTS AND THEIR PROJECTION

Any evaluation of vocational education programs on a state-wide basis must examine at least two concerns relating to student output. The first relates to the discrepancy between the actual manpower requirements and the number of graduates being trained to fill available positions and the second relates to the degree of employer satisfaction with the persons graduating from various programs of vocational training. This chapter of the report is directed to the first concern, the second concern is addressed in Chapter 6 as part of the discussion of an employer survey.

As might be expected, projecting manpower requirements is an extremely uncertain endeavor. Who in 1960 would have predicted an excess of engineers in the Seattle area? How can one reliably predict the economic and occupational implications of the recent concern with environmental conditions? What use are manpower requirements when many persons are known not to enter (at least not immediately) the specific occupation for which they received training? These are all questions which must be faced in dealing realistically with the relationship between manpower needs and vocational training programs. Subsequent sections of this chapter attempt to summarize manpower information currently available and report on efforts to improve our projection capabilities.

Manpower Trends in State and Nation

Any effort to relate manpower needs with training programs must consider the geographical areas in which students are most likely to seek jobs. For purposes of the SCR-23 study, we have assumed that students will, for the most part, seek employment within Washington State; however, the increasing mobility of our working force suggests that some attention should also be given to national manpower trends. In Table 3.1a, we see the employment breakdown by industry type for both 1960 and

TABLE 3.1a

EMPLOYMENT FORCE BY BUSINESS SECTOR[a]

1960 - 1970

Type of Business	Washington State		
	1960	1970	Percent Change
Goods Producing	382,394	385,471	+ .8
Agriculture and Mining	67,985	55,130	-18.9
Contract Construction	67,471	71,334	+ 5.7
Manufacturing	246,938	259,007	+ 4.9
Service Producing	590,495	803,955	+36.1
Transportation & Utilities	77,188	90,142	+16.8
Trade	196,256	254,677	+29.8
Finance, Insurance, Real Estate	42,802	66,327	+55.0
Services & Miscellaneous	221,524	325,798	+47.1
Government	52,725	67,011	+27.1
Total[b]	1,001,909	1,250,270	+24.8

[a] The data as presented is taken from U.S. Census Reports for 1960 and 1970 and includes the civilian labor force 14 years and over for both years.

[b] The totals also include the persons whose specific occupations were not reported for each of the two years.

1970. Of particular importance is a continuing trend in Washington State toward a service-producing economy, with an increase in the service producing sector of 36.1 percent. This particularly pronounced trend in the Northwest is caused in large part by cutbacks in both the aerospace and contract construction fields and the corresponding increases in education, hospital, and recreational services.

In Table 3.1b, we compare the change in occupational structure over the same ten year period. Among the categories normally considered appropriate for vocational training, the clerical and service worker groups have experienced the most rapid growth. We note also that the growth rate of 11.0 percent for the blue collar worker category in Washington State is considerably less than the overall 24.8 percent growth for all employment categories. The comparative percentage distribution of employees for both Washington State and the United States is presented in Table 3.1c. A brief review of this table shows that the respective percentages of white and blue collar workers for Washington State and the United States are generally compatible. The slightly higher percentage of service workers in Washington State coupled with the somewhat smaller portion of operative employees indicates that, compared with the United States, Washington tends toward a more service-producing economic system. Overall, the figures as presented in Table 3.1c indicate a remarkable similarity in the distribution over the basic worker categories for both Washington State and the United States.

Before proceeding with an examination of probable manpower needs in Washington State, we should briefly review the distribution of various worker categories in the different legislative districts throughout the State. Table 3.1d summarizes the labor force characteristics for each of Washington's 49 legislative districts and Map 3.1a illustrates the percent of females in the labor force for each of those same legislative districts. It is clear that the female representation in the total labor force tends to be highest in the urban centers of Spokane, Seattle, and Tacoma; however, it should be noted that no legislative district has less

TABLE 3.1b

EMPLOYMENT FORCE BY OCCUPATIONAL CLASSIFICATION[a]

1960 - 1970

Occupational Classification	Washington State		
	1960	1970	Percent Change
White Collar Workers	448,991	605,613	+34.9
Professional & Technical	130,744	198,918	+52.1
Managers & Proprietors	97,156	109,644	+12.9
Clerical Workers	146,180	206,226	+41.1
Sales Workers	74,911	90,825	+21.2
Blue Collar Workers	348,754	386,946	+11.0
Craftsmen & Foremen	148,368	171,132	+15.3
Operatives	141,734	153,065	+ 8.0
Nonfarm Laborers	58,652	62,749	+ 7.0
Service Workers	113,188	154,945	+36.9
Farmers and Farm Workers	56,467	40,099	-29.0
Not Reported	34,509	62,667	+81.6
Total	1,001,909	1,250,270	+24.8

[a] The data as presented are taken from U.S. Census Reports for 1960 and 1970.

Table 3.1c

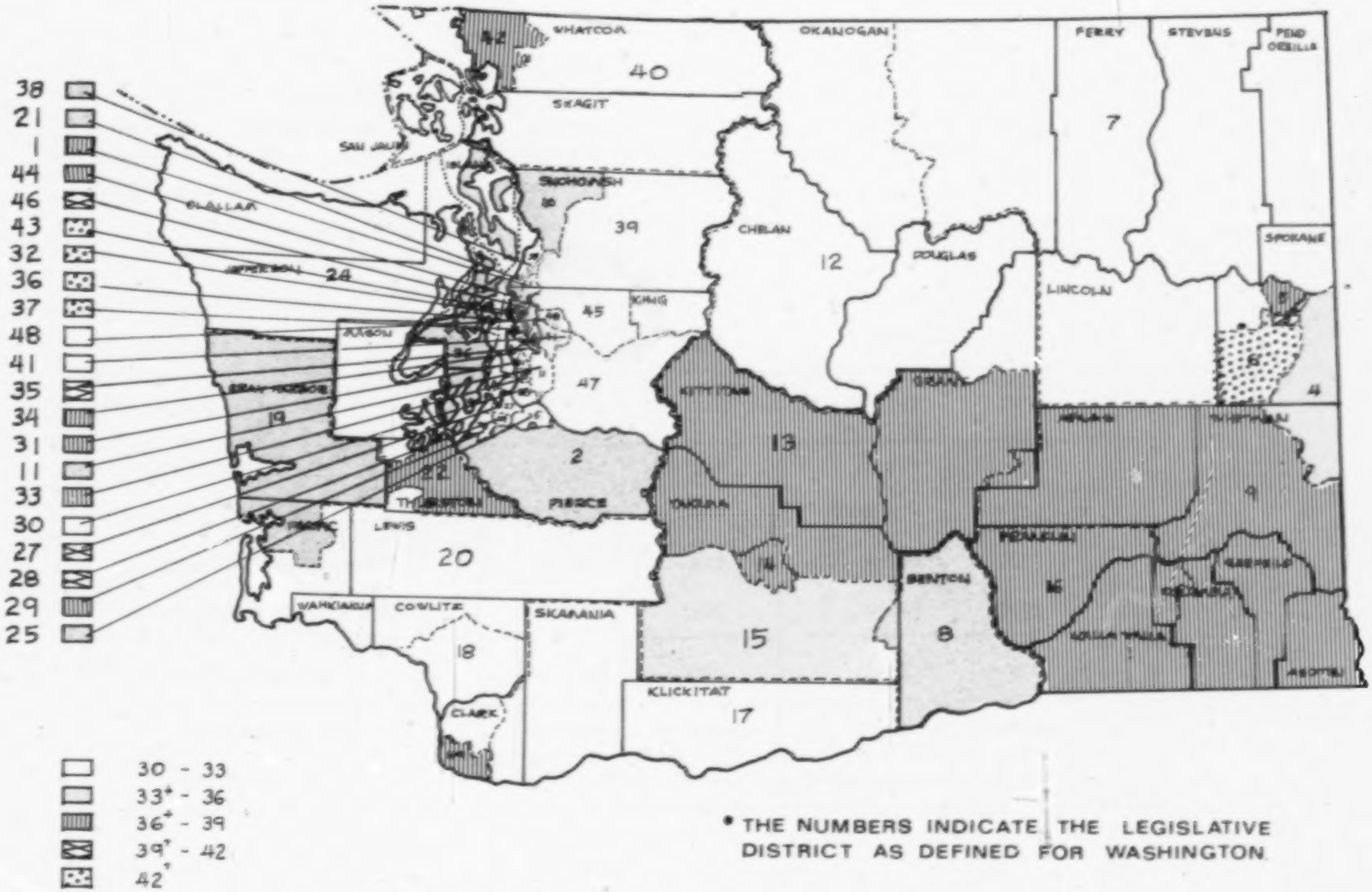
DISTRIBUTION OF EMPLOYED CIVILIAN LABOR FORCE[a]

1970

Occupational Classification	Washington State		United States (in thousands)	
	Number	Percent	Number	Percent
White Collar Workers	625,488	50.7	37,997.	48.3
Professional and Technical	206,359	16.7	11,140.	14.2
Managers and Proprietors	112,802	9.1	8,289.	10.5
Clerical Workers	215,293	17.5	13,714.	17.4
Sales Workers	91,034	7.4	4,854.	6.2
Blue Collar Workers	405,932	33.0	27,791.	35.3
Craftsmen and Foremen	179,705	14.6	10,158	12.9
Operatives	161,406	13.1	13,909.	17.7
Non-farm Laborers	64,821	5.3	3,724.	4.7
Service Workers	160,299	13.0	9,712.	12.4
Farmers and Farm Workers	41,344	3.3	3,126.	4.0
Total	1,233,063	100.0	78,627.	100.0

[a] These figures include the total civilian labor force of age 16 and above and hence do not include the workers of ages 14 and 15 which were included in Table 3.1b. The figures were obtained from the 1970 U.S. Census.

MAP 3.1a
PERCENTAGE OF FEMALES IN THE EMPLOYED CIVILIAN LABOR FORCE.*
1970



WHATCOM
SKAGIT
SAN JUAN
SNOHOMISH
CLALLAM
JEFFERSON
MASON
GRAYS HARBOR
KING
PIERCE
THURSTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
OKANOGAN
CHELAN
DOUGLAS
KITTITAS
YAKIMA
BENTON
GRANT
ADAMS
FRANKLIN
WALLA WALLA
COLUMBIA
GARFIELD
ASOTIN
WHITMAN
LINCOLN
SPOKANE
FERRY
STEVENS
PEND OREILLE
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36⁺ - 39
39⁺ - 42
42⁺

* THE NUMBERS INDICATE THE LEGISLATIVE DISTRICT AS DEFINED FOR WASHINGTON.

TABLE 3.1d

OCCUPATIONAL DISTRIBUTION BY LEGISLATIVE DISTRICT IN WASHINGTON STATE[a]

1970

Legislative District[b]	Employed Civilian Labor Force	Percent of Total by Category				
		Female	White Collar	Blue Collar	Service Workers	Farm Workers
1	26300	36.6	59.4	29.8	10.4	0.4
2	21252	35.2	40.1	42.2	14.1	3.6
3	22940	41.0	43.5	34.0	22.0	0.5
4	24140	33.4	45.7	36.3	13.0	5.0
5	25718	38.8	59.1	26.6	13.9	0.4
6	24636	42.0	61.9	18.9	17.4	1.8
7	22080	30.9	36.2	35.2	12.1	16.5
8	25610	35.2	51.4	30.4	12.1	6.1
9	24990	36.7	44.7	23.0	15.3	17.0
10	20811	35.1	44.2	39.8	12.0	4.0
11	25687	34.4	53.0	36.0	10.2	0.8
12	25099	32.8	40.2	32.9	11.6	15.3
13	25240	36.1	42.6	30.8	13.4	13.2
14	24001	38.4	50.7	29.8	14.0	5.5
15	22511	33.9	31.0	31.4	10.6	27.0
16	25778	37.8	46.9	27.1	16.1	9.9
17	23810	32.0	38.9	45.9	10.9	4.3
18	23970	30.9	39.1	47.6	11.7	1.6
19	24008	33.6	36.4	46.9	14.6	2.1
20	22779	31.7	36.4	46.3	12.6	4.7
21	26049	34.9	59.2	31.3	9.3	0.2
22	25878	38.5	57.5	28.0	12.8	1.7
23	23298	35.3	49.9	37.8	11.7	0.6
24	22674	32.2	40.1	43.3	14.6	2.0
25	24430	33.4	44.5	41.5	11.0	3.0
26	24285	33.5	49.8	37.9	11.7	0.6
27	23550	40.2	49.6	33.0	17.0	0.4
28	22573	39.7	62.1	23.0	14.6	0.3

TABLE 3.1d (Cont.)

OCCUPATIONAL DISTRIBUTION BY LEGISLATIVE DISTRICT IN WASHINGTON STATE[a]

1970

Legislative District[b]	Employed Civilian Labor Force	Percent of Total by Category				
		Female	White Collar	Blue Collar	Service Workers	Farm Workers
29	22700	38.3	42.4	40.2	16.8	0.6
30	24060	33.0	52.4	35.7	10.8	1.1
31	26086	36.7	49.2	38.6	12.0	0.2
32	29247	44.9	54.7	30.7	14.4	0.2
33	27293	36.3	57.5	30.4	11.8	0.3
34	27365	38.2	55.0	34.1	10.7	0.2
35	27786	39.2	50.0	35.8	13.8	0.4
36	32536	45.3	66.4	20.4	13.0	0.2
37	26907	43.8	46.4	30.1	23.0	0.5
38	25537	35.0	44.1	42.4	13.3	0.2
39	22995	30.9	42.7	43.9	10.9	2.5
40	23638	32.0	40.8	38.1	13.6	7.5
41	26601	32.6	69.4	22.1	8.3	0.2
42	24089	36.1	45.7	33.5	16.2	4.6
43	30598	45.3	73.3	14.0	12.5	0.2
44	27818	37.7	58.0	29.0	12.8	0.2
45	25315	33.0	57.3	30.0	11.2	1.4
46	29812	40.7	65.5	23.1	11.2	0.2
47	23465	31.2	44.9	43.0	10.6	1.5
48	26439	32.6	76.1	15.4	8.2	0.3
49	26265	37.6	48.6	38.1	12.1	1.2
Total[c]	1230649	36.8	51.0	32.5	13.1	3.4

[a] All data obtained from the 1970 Census

[b] The legislative districts are those as established by the U.S. District Court Order (case 9668) filed April 21, 1972 at Seattle, Washington. These districts are outlined in Map 3.1a which follows the Table.

[c] The total here differs slightly from the statewide figure as presented in Table 3.1c due to the handling of military personnel in the census tabulations.

than 30 percent of its employment force represented by females. The state female average employment percentage of 36.8 is approximately 1 percent less than the comparable female employment percentage for the United States as a whole.

Turning now to the projection of manpower needs, we noted in Table 3.1e that the Washington Employment Security Department estimates an overall increase of 59,540 new positions during the 1970-75 period. More detailed breakdowns of these same general manpower requirements are found in Appendix 3a of this report. We note in Table 3.1e that the areas projected for most rapid growth are the clerical and service worker categories. Both of these rapid growth areas require less than a baccalaureate degree and therefore are clearly a concern in this particular study of vocational education. Of special importance in these projected manpower needs for Washington State are the following:

1. The greatest number of jobs available through 1975 will be for occupational categories under the service worker heading. Anticipated are 16,090 new jobs plus 38,160 labor force separations for a total of 54,250 openings. New positions will stem largely from expansions in retail trade, medical and educational institutions, and local government, and will especially involve cooks, waiters and waitresses, practical nurses, hospital attendants, janitors, and policemen.

2. Rapid growth among the service worker categories listed above represents a continuation in the shift toward a service-producing rather than goods-producing economic system. In the ten year period beginning in 1966, the U.S. Department of Labor estimates that service-producing industries will grow 25 percent as compared with only 6 percent for goods-producing industries. A recent article in US News and World Report confirms this trend and estimates that by 1980, seven Americans will be working in service jobs for every three involved in making products--just the reverse of the situation at the start of the century.[1] For the first time in history, Americans are now spending more money on services than on all non-durable goods such as food, clothing, fuel, beverages, and tobacco products. Soon it can be expected that the consumer outlays for services will exceed the total for all tangible products, including cars and homes. Victor R. Fuchs, of the City University of New York faculty and author of The Service Economy, has said, "The large corporation is likely to become overshadowed by the hospitals, universities, research institutions, government agencies, and professional organizations that are the hallmark of a service economy."[2] From these various predictions, we can safely

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[1] U.S. News and World Report, November 9, 1970, p. 34.

[2] Ibid. p. 35.

TABLE 3.1e

WASHINGTON STATE EMPLOYMENT FORCE PROJECTIONS, 1970-75

Occupational Classification	Added Demand for 1970-75[a]			Total Employment 1970[b]	Average Yearly Increase[c] (in percent)
	Expansion	Replacement	Total		
Professional & Technical	14,350	25,050	39,400	206,359	3.82
Managers & Proprietors	5,890	17,540	23,430	112,802	4.15
Clerical Workers	18,310	35,390	53,700	215,293	4.97
Sales Workers	6,700	12,610	19,310	91,034	4.24
Craftsmen & Foremen	7,170	18,830	26,000	179,705	2.89
Operatives	1,910	18,010	19,920	161,406	2.47
Nonfarm Laborers	- 5,620	6,190	570	64,821	.17
Service Workers	16,090	38,160	54,250	160,299	6.77
Farmers & Farm Workers	- 5,260	6,960	1,700	41,344	.82
Total	59,540	178,740	238,280	1,233,063	3.86

[a] Demand increase for the 1970-75 period is taken directly from the Employment Security Department report as included in Appendix 3A.

[b] Data obtained from the 1970 U.S. Census.

[c] This is simply the percent increase of added demand over 1970 employment divided by five. The increases differ slightly from those listed in Appendix 3A due to the use of actual rather than estimated 1970 employment figures.

assume that the educational requirements for a large segment of our future labor force, both nationally and in the State of Washington, will be oriented toward a service-producing economy.

3. Among manufacturing industries, jobs are likely to be more closely connected with automation, involve greater worker responsibility, and include a more pliable set of duties. Employment will focus upon personalized services and will be most positive for those who can perform unique or highly technical functions. Also involved in the general upturn in our economy will be a realignment of importance among various industries, as the non-manufacturing sector gains in importance over the manufacturing, and lumber and wood, metals, and machinery replace aerospace as primary foundations for industrial growth. The implied adjustment in the work force is enormous. Many workers will not be able to take advantage of economic growth in this State until bolstering their skills through further strategic training.

4. Clerical workers will experience the largest categorical increase in their jobs over the forecast period, 1970-75. It is estimated that the clerical worker category will gain 18,310 jobs as a result of growing organizational complexity and an extended volume of paperwork. Labor force separations will also be high among clerical workers, equaling 35,390, thus making a total of 53,700 openings during the 1970-75 period. Jobs will be most abundant for cashiers, office machine operators, bookkeepers, bank tellers, typists, stenographers, and secretaries. Only the spread of electronic data processing machines will inhibit employment of clerical workers to any great extent.

5. Operative employment will be most severely inhibited by aerospace layoffs and technological advances. The routine, repetitive nature of the duties of semi-skilled workers makes their jobs particularly susceptible to mechanical replacement. Of an anticipated 19,920 openings, only 1,910 will result from the creation of new jobs. Worse off will be semi-skilled metal working occupations, especially machine tool operators, class A and class B assemblers, and class B inspectors. Only drivers and deliverymen will show any real potential for growth, profiting from increased trade without their position being endangered by technological improvements.

The manpower needs defined to this point are presented in accordance with occupational classifications used in the United States Census. No attempt has been made to match occupational categories with specific training programs or to examine present and anticipated enrollments in the specific training programs as identified. These latter concerns are obviously critical to any evaluation of vocational programs and are also essential in long-range planning in the State. Unless some means is found to relate manpower needs to specific job training programs (and their respective placement experience), we cannot expect to use the manpower projections as anything more than a gross estimate of direction for our offerings in various vocational programs. In the next part of this chapter, we explore the general problem of relating manpower needs to educational programming and attempt to describe the broad outlines of a program currently under development in the Research Department of the Coordinating Council for Occupational Education.

Manpower Needs and Educational Planning

The manpower projections presented in the previous section provide only general trends by broad occupational categories. They are not in their present form particularly useful in planning the number and size of specific vocational training programs across the State. While the trends reported might suggest that we need to be training more people for various clerical and service worker positions and fewer for the traditional blue collar skill areas, it is only as the specific manpower requirements can be related to course completion and job placement ratios that they become meaningful for purposes of educational evaluation and planning.

A recent effort has been made within the State of Washington to develop a forecasting guide relating school enrollments to employment demands. In a report entitled, "Forecasting Guide: Employment/Enrollment," Mr. Frank H. Wimer, Research Director for the Coordinating Council for Occupational Education, outlines a detailed procedure for computing appropriate enrollments in various vocational courses. In the preface to the "Forecasting Guide: Employment/Enrollment," Mr. Wimer reports:

> This document is the first attempt at forecasting appropriate vocational education program enrollment to meet "manpower needs," based on the assumption that a comprehensive school system should in general mirror or reflect the kinds of skills required in the world of work. The method attempts to forecast the total vocational education enrollment in a state-wide, comprehensive school system and the potential enrollment in selected occupations based upon projections of the work force composition. By comparing the elements in the forecast with the actual program output, the system can have "self-correcting feedback," with factors applied to bring the elements into proper balance.

A sample analysis sheet generated by this forecasting system is presented on the following page and a more detailed description is found in Appendix 3B of this report. In the sample analysis sheet of Table 3.2a, we note that the primary

TABLE 3.2a

SAMPLE ANALYSIS SHEET[a]

SYSTEM ____________
FIELD ____________
CODE (OE)

DATE March 27, 1972
ANALYST Wimer
APPROVED ____________

11.0 Comparison of Trends in Work Force to Enrollment

1 Year	2 "Enrollment in Field"	3 Total FTE-S	4 % of Total FTE-S Enrolled in the "Field" (Col 2 ÷ Col 3)	5 % of Average Employment in the "Field"
1967	111	42,124	.26 %	.180%
1971	136	67,934	.20 %	.143%
		Change	- .06 %	- .037%

12.0 Comparison of Enrollment to Output

The number of "entering enrollees" is compared with the output of the same "group" in terms of rate of completion (see column 4 below), and rate of employment (see column 6 below) as measured in October following the normal June completion date of the "group."

1 Normal Completion Year	2 # of Entering Enrollees	3 # of Graduates or Completions	4 Completion Rate (Col 3 ÷ Col 2)	5 # Employed in "Field or Related Field"	6 Employment Rate (Col 5 ÷ Col 2)
1967					
1968					
1969	71	45	63.38%		
1970	147	37	25.17%	35	23.81%
1971	111	68	61.26%	17	15.32%

13.0 Comparison of Output to Demand

Assume a continuation of the 1970 "employment rate" for the forecast period of five years (1970-1975).

$$\frac{\text{Graduates Employed (35) x No. of Years (5)}}{\text{Expan (225) + Replace (120)}} = \frac{\text{Est Empl Output (175)}}{\text{Est Demand (345)}} = 50.72\%$$

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[a] This is only a sample which might be used in connection with the "Forecasting Guide: Employment/Enrollment."

purpose of the forecasting system is that of relating estimated employment output (expressed in terms of "number of enrollees in a program who are seeking and obtaining employment in a field related to the program in question") to the estimated demand for employment (usually computed as "the sum of expansion and replacement needs within a particular occupational field"). This particular forecasting system is currently being piloted in the State of Washington and can hopefully prove to be a valuable tool in assessing the reasonableness of enrollments in various vocational programs throughout the State.

At the time of publication for the SCR-23 report, only preliminary data related to "low demand" and "high demand" occupational categories was possible.[1] It should also be noted that this preliminary data is limited to enrollments at the community college level. With reference to "low demand" occupations, it has been established that both airplane mechanics and air traffic controllers are low demand occupations with an increasing enrollment in the community colleges. We find also that the programs for machinists (toolmakers, diemakers, tool operators), jewelers and watchmakers, and sheet metal workers have increasing enrollments; but these occupations have not yet reached their potential level of enrollment. In other words, enrollments in programs relating directly to these several occupational categories have been increasing in recent years but these increases can most probably be accommodated because the enrollments have not yet, according to the forecast model assumptions, reached the level of saturation in the actual working world.

In looking at "high demand" occupations, we note that only one program--cashiers--has a decreasing enrollment at the community college level. More specifically, based on forecast model assumptions, the total enrollment for cashiers is only 14 percent of the potential enrollment for the system. This means that enrollments in programs leading to the cashier position can be increased substantially before the employment market for cashiers is totally filled. There also exist a number of "high demand" occupations for which no public school training is now available. These areas include guards, watchmen, doorkeepers; bartenders; excavating, grading machine operators; linemen, deliverymen and routemen; drivers - bus, truck, tractors.

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[1] Low and high demand occupations as used here are the lowest and upper third respectively of the occupations (ranked by numerical demand) as reported in Appendix 3A of this SCR-23 report.

The forecasting guide used to project these tentative trends is described in further detail in Appendix 3B. While this particular model holds considerable promise as a means of relating educational program enrollments to manpower needs, the validity of certain assumptions upon which the forecasting method is based will need to be carefully assessed. First of all, the projection system is generally based upon the premise that training programs and occupational titles can be related in a direct training to employment sequence; and, more specifically, that any given occupational field (as defined by the Dictionary of Occupational Titles), can be related in a rather direct way to a specific and identifiable set of training programs. Knowing that many persons hold (and continue to be placed in) jobs for which they did not receive specific job skill preparation suggests that this relationship may not, in every case, be easily defined. Even in cases where a relationship can be established, changes in the proportion of persons entering a particular occupation from non-related training must be examined as a possible influence on the productive capability. The system as designed does permit inclusion of these special factors (such as non-related training or persons returning to the labor market after an extensive separation); however, unless we find ways to study trends in these areas, we have very little chance of making reasonable predictions. The collection of data needed to analyze these trends could be a very expensive and time consuming task.

A second important caution to be exercised in evaluating the forecasting model relates to the geographical area of consideration. Since job training programs and employment opportunities do not incorporate similar geographical boundaries, the system must ultimately consider the balance between local job trainees leaving the state and those persons seeking jobs in the state but receiving training elsewhere. Again, the assumption built into the forecasting model that this balance will remain approximately the same as in the past is apparently receiving careful attention during the pilot phase of its use.

A final concern with the forecasting model relates to the decision-making structure which will ultimately respond to the imbalances as detected using the system. At some point, a method of communicating and controlling enrollments in various programs will have to be considered. Whether this method is a strictly voluntary system or whether legislatively approved control will be required should be thoroughly examined prior to full implementation of the forecasting system. If the system is to be strictly informational and voluntary, some effort should be made to assess the willingness of the system itself to respond to voluntary control. Unless such a response can be predicted, there would seem little justification for the extensive data collection and analysis required in fully implementing the system.

Despite these concerns respecting the forecasting system, the SCR-23 study staff and Steering Committee strongly endorse the continued development and experimentation with forecasting relationships between manpower and educational enrollments. Only as our predictive capabilities are developed can we reasonably allocate federal and state funds to various institutions and training programs.

APPENDIX 3A: CONSTRUCTED AVERAGE EMPLOYMENT

Taken from:
Occupational Trends Washington State 1970-1975
Employment Security Dept., Research & Statistics
October, 1971

"Constructed
Average Employment"

DATE January 11, 1972
SYSTEM State of Washington

Occupation	Calendar 1960 Estimates	Percent of Average Employment	Calendar 1970 Estimates	Percent of Average Employment	Calendar 1975 Estimates	Percent of Average Employment	Calendar 1970-1975 Expansion	Calendar 1970-1975 Replacement Needs	Average Replacement Needs Percent Per Year From 1970 Estimate	Total Demand 1970-1975	Average Total Demand Percent Per Year From 1970 Estimate
TOTAL ALL OCCUPATIONS	1,020,280		1,288,150		1,347,690		59,540	178,740	2.775	238,280	3.69
Professional, Technical, Kindred	137,750	13.50	201,900	15.67	216,250	16.04	14,350	25,050	2.481	39,400	3.90
Engineers, Technical	21,950	2.15	33,630	2.61	31,640	2.35	-1,990	1,860	1.106	- 130	- .08
Engineers, Aeronautical	4,700	.46	4,900	.39	3,410	.25	-1,490	160	3.555	- 1,330	- 5.42
Chemical	720	.07	970	.08	940	.07	- 30	60	1.237	30	.61
Civil	4,330	.42	7,160	.56	7,780	.58	620	560	1.564	1,180	3.29
Electrical	4,090	.40	6,740	.52	6,290	.47	- 450	310	.919	- 140	- .45
Industrial	2,150	.21	4,160	.32	3,700	.27	- 460	240	1.153	- 220	- 1.05
Mechanical	3,820	.37	5,520	.43	5,150	.38	- 370	290	1.050	- 80	- .28
Metallurgical	340	.03	560	.04	530	.04	- 30	40	1.428	10	3.57
Mining	60	.006	60	.005	70	.005	10	0	0.000	10	3.33
Other Engineers, Technical	1,740	.17	3,560	.28	3,770	.28	210	200	1.123	410	2.30
Natural Scientists	2,590	.25	4,030	.31	4,300	.32	270	210	.977	480	2.38
Chemists	1,050	.10	1,560	.12	1,630	.12	70	90	1.153	160	2.05
Agricultural Scientists	440	.04	650	.05	750	.06	100	20	.615	120	3.69
Biological Scientists	390	.04	600	.05	710	.05	110	50	1.665	160	5.33
Geologists, Geophysicists	200	.02	330	.03	350	.03	20	20	1.212	40	2.42
Mathematicians	140	.01	230	.02	220	.02	- 10	10	.869	0	0.00
Physicists	310	.03	570	.04	560	.04	- 10	20	1.754	10	3.50
Other Natural Scientists	60	.006	90	.007	80	.006	- 10	0	0.000	- 10	- 2.22
Technicians, exc. Medical & Den	12,220	1.20	19,090	1.48	19,780	1.47	690	970	1.016	1,660	1.73
Draftsmen	3,250	.32	4,020	.31	4,050	.30	30	230	1.144	260	1.29
Surveyors	1,060	.10	1,850	.14	2,130	.16	280	80	.864	360	3.89
Air Traffic Controllers	340	.03	310	.02	300	.02	- 10	20	1.290	10	.64
Radio Operators	520	.05	740	.06	840	.06	100	40	1.081	140	3.78
Technicians, Other	7,050	.69	12,170	.94	12,460	.92	290	600	.986	890	1.46
Medical, Other Health Workers	24,060	2.36	29,450	2.29	34,800	2.58	5,350	5,240	3.558	10,590	7.19
Dentists	1,750	.17	2,090	.16	2,420	.18	330	310	2.966	640	6.12
Dieticians, Nutritionists	450	.04	490	.04	520	.04	30	110	4.489	140	5.71
Nurses, Professional	11,290	1.11	13,160	1.02	15,300	1.14	2,140	2,720	4.133	4,860	7.38
Optometrists	350	.03	370	.03	400	.03	30	10	.540	40	2.16
Pharmacists	1,790	.18	2,070	.16	2,300	.17	230	310	2.995	540	5.21
Physicians and Surgeons	3,630	.36	4,640	.36	5,560	.41	920	500	2.155	1,420	7.20
Psychologists	240	.02	440	.03	550	.04	110	40	1.818	150	6.81
Technicians, Medical, Dental	2,480	.24	3,920	.30	5,300	.39	1,380	740	3.775	2,120	10.81
Veterinarians	430	.04	540	.04	640	.05	100	30	1.111	130	4.81
Other Medical, Health Workers	1,650	.16	1,730	.13	1,810	.13	80	470	.657	550	6.35
Teachers	32,590	3.19	46,850	3.64	49,740	3.69	2,890	7,770	3.316	10,660	4.55
Teachers, Elementary	17,740	1.74	21,900	1.70	22,180	1.65	280	4,250	3.881	4,530	4.13
Secondary	9,350	.92	15,500	1.20	16,030	1.25	1,330	2,190	2.825	3,520	4.54
College	3,110	.30	5,890	.46	6,800	.50	910	690	2.342	1,600	5.43
Other	2,300	.23	3,560	.28	3,930	.29	370	640	3.595	1,010	5.67

Occupation	Calendar 1960 Estimates	Percent of Average Employment	Calendar 1970 Estimates	Percent of Average Employment	Calendar 1975 Estimates	Percent of Average Employment	Calendar 1970-1975 Expansion	Calendar 1970-1975 Replacement Needs	Average Replacement Needs Percent Per Year From 1970 Estimate	Total Demand 1970-1975	Average Total Demand Percent Per Year From 1970 Estimate
Social Scientists	450	.04	620	.05	690	.05	70	60	1.935	130	4.19
Economists	160	.02	240	.02	280	.02	40	20	1.666	60	5.00
Statisticians and Actu.	260	.03	340	.03	350	.03	10	40	2.353	50	2.94
Other Soc. Scientists	30	.003	40	.003	60	.004	20	0	0.000	20	10.00
Other Professiona, Tech., Kindred	43,890	4.30	68,230	5.30	75,300	5.59	7,070	8,940	2.620	16,010	4.69
Accountants	9,090	.89	13,360	1.04	14,260	1.06	900	1,650	2.470	2,550	3.81
Airplane Pilots and Nav.	950	.09	1,750	.14	1,970	.10	220	120	1.371	340	3.88
Architects	970	.10	1,760	.14	2,110	.16	350	170	1.931	520	5.90
Workers in Arts, Enter.	8,440	.83	12,630	.98	13,900	1.03	1,270	2,150	3.404	3,420	5.41
Clergymen	3,370	.33	3,710	.29	3,790	.28	80	480	2.587	560	3.02
Designers, exc. Design Drafts	700	.07	1,170	.09	1,370	.10	200	70	1.196	270	4.61
Editors and Reporters	1,440	.14	1,690	.13	1,800	.13	110	220	2.603	330	3.90
Lawyers and Judges	3,260	.32	4,070	.32	4,440	.33	370	620	3.046	990	4.86
Librarians	1,930	.19	2,710	.21	2,970	.22	260	640	4.723	900	6.64
Per. & Labor Rel. Wrks.	1,790	.18	2,800	.22	2,980	.22	180	350	2.500	530	4.08
Other Prof., Tech., Kind (Continued)											
Photographers	900	.09	930	.07	900	.07	- 30	90	1.935	60	1.29
Social & Welfare Wrks.	1,730	.17	2,660	.21	3,170	.24	510	450	3.383	960	7.21
Prof., Tech., Kind. Nec.	9,320	.91	18,990	1.47	21,640	1.61	2,650	1,930	2.030	4,580	4.83
Managers, Officians & Prop.	102,180	10.01	125,250	9.72	131,140	9.73	5,890	17,540	2.800	23,430	3.74
Conductors, Railroad	670	.07	650	.05	650	.05	0	70	2.153	70	2.15
Creditmen	860	.08	1,270	.10	1,470	.11	200	210	3.207	410	6.45
Off., Pilots, Eng., Ship	1,820	.18	2,270	.18	2,650	.20	380	270	2.378	650	5.72
Purchasing Agents	2,470	.24	2,890	.22	2,880	.21	- 10	380	2.629	370	2.56
Postmasters, Assistants	610	.06	600	.05	600	.04	0	100	3.333	100	3.33
Mgrs., Off., Pro., Nec.	95,750	9.38	117,570	9.13	122,890	9.12	5,320	16,510	2.808	21,830	3.65
Clerican & Kindred	154,700	15.16	208,670	16.20	226,980	16.84	18,310	35,390	3.391	53,700	5.14
Stenos., Typists, Sec.	35,820	3.51	50,890	3.95	55,000	4.08	4,110	11,750	4.617	15,860	6.23
Office Machine Ops.	5,110	.50	7,580	.59	9,190	.68	1,610	1,680	4.432	3,290	8.68
Other Clerical & Kind.	113,770	11.15	150,200	11.66	162,790	12.08	12,590	21,960	2.924	34,550	4.60
Acctg. Clerks	6,440	.63	7,550	.59	7,830	.58	280	1,440	3.814	1,720	4.55
Bookkeepers, Hand	11,910	1.17	14,440	1.12	16,000	1.19	1,560	2,750	3.808	4,310	5.96
Banktellers	2,300	.23	4,070	.32	5,220	.39	1,150	620	3.046	1,770	8.69
Cashiers	7,430	.73	13,020	1.01	15,950	1.18	2,930	2,290	3.517	5,220	8.01
Mail Carriers	3,030	.30	4,200	.33	4,860	.36	660	300	1.428	960	4.07
Postal Clerks	3,280	.32	4,550	.35	5,230	.39	680	490	2.153	1,170	5.14
Shipping, Rec. Clerks	2,960	.29	3,140	.24	3,090	.23	- 50	300	1.910	250	1.59
Telephone Operators	5,400	.53	6,380	.50	6,990	.52	610	1,520	4.764	2,130	6.67
Clerical & Kind. Work., Kindred	70,940	6.95	92,850	7.21	97,620	7.24	4,770	12,250	2.683	7,020	3.66
Sales Workers	79,140	7.76	99,320	7.71	106,020	7.87	6,700	12,610	2.539	19,310	3.83
Craftsmen	155,690	15.26	192,650	14.96	199,820	14.83	7,170	18,830	1.954	26,000	2.69
Construction Craftsmen	46,960	4.60	53,550	4.16	54,900	4.07	1,350	5,590	2.087	6,940	2.59
Carpenters	18,080	1.77	18,560	1.44	18,850	1.40	290	2,120	2.284	2,410	2.59

Occupation	Calendar 1960 Estimates	Percent of Average Employment	Calendar 1970 Estimates	Percent of Average Employment	Calendar 1975 Estimates	Percent of Average Employment	Calendar 1970-1975 Expansion	Calendar 1970-1975 Replacement Needs	Average Replacement Needs Percent Per Year From 1970 Estimate	Total Demand 1970-1975	Average Total Demand Percent Per Year From 1970 Estimate
Construction Craftsmen (Cont.)											
Brickmason and Tile Setters	1,880	.18	2,130	.17	2,220	.16	90	160	1.502	250	2.34
Cement, Concrete Finishers	750	.07	1,020	.08	1,190	.09	170	100	1.960	270	5.29
Electricians	7,110	.70	8,440	.66	8,150	.60	- 290	770	1.824	480	1.13
Excavating, Grading Mach. Ops.	5,220	.51	6,510	.51	7,140	.53	630	640	1.966	1,270	3.90
Painters and Paper Hangers	5,520	.54	5,660	.44	5,730	.43	70	710	2,508	780	2.75
Plasterers	410	.04	460	.04	480	.04	20	50	2.137	70	3.04
Plumbers and Pipe Fitters	5,290	.52	6,890	.53	7,270	.54	380	720	2.089	1,100	3.19
Roofers and Slaters	880	.09	1,070	.08	1,160	.09	90	100	1.869	190	3.55
Structural Metal Workers	1,820	.18	2,810	.22	2,710	.20	- 100	220	1.565	120	.85
Foremen, Nec.	18,000	1.76	24,300	1.89	24,400	1.81	100	2,390	1.967	2,490	1.80
Metal Working Craftsmen	17,520	1.72	17,290	1.34	15,720	1.17	-1,570	1,710	1.978	140	.16
Machinists and Related Occ.	8,790	.86	8,100	.63	6,770	.50	-1,330	840	2,074	- 490	- 1.20
Blacksmith, Forgemen, Hammermen	420	.04	320	.02	300	.02	- 20	70	4.375	50	3.32
Boilermakers	710	.07	890	.07	860	.06	- 30	110	2.471	80	1.79
Millwrights	1,860	.18	2,150	.17	2,340	.17	190	200	1.860	390	.43
Molders, Metal, exc. Coremakers	350	.03	430	.03	450	.03	20	40	1.860	60	2.79
Patternmakers, Metal, Wood	730	.07	630	.05	510	.04	- 120	90	2.857	- 30	- .95
Rollers and Roll Hands	200	.02	230	.02	240	.02	10	30	2.608	40	3.47
Sheet Metal Workers	3,000	.29	3,110	.24	2,960	.22	- 150	230	1.414	80	5.14
Toolmakers and Diemakers	1,460	.14	1,430	.11	1,290	.10	- 140	100	1.398	- 40	.56
Printing Trades Crafts	3,650	.36	3,970	.31	4,070	.30	100	450	2.267	550	2.77
Compositors, Typesetters	2,370	.23	2,280	.18	2,150	.16	- 130	280	2.456	150	1.31
Electrotypers, Stereotypers, Engravers	220	.02	200	.02	210	.02	10	20	2.000	30	3.00
Photogravers, Lithographers	270	.03	400	.04	610	.05	130	50	2.083	180	7.50
Pressmen and Plate Printers	790	.08	1,010	.08	1,100	.08	90	100	1.980	190	3.76
Transportation and Public Utilities Crafts	7,240	.71	8,230	.64	9,600	.71	1,370	560	1.360	1,930	4.69
Linemen and Servicemen	5,420	.53	6,860	.53	8,300	.62	1,440	320	.932	1,760	5.13
Locomotive Engineers and Firemen	1,820	.18	1,370	.11	1,300	.10	- 70	240	3.503	170	2.48
Mechanics and Repairmen	41,120	4.03	59,510	4.62	63,260	4.69	3,750	5,360	1.801	9,110	3.06
Airplane Mechanics and Repairmen	6,690	.66	6,230	.48	5,210	.39	-1,020	300	.963	- 720	- 2.31
Motor Vehicle Mechanics	11,240	1.10	16,240	1.26	17,450	1.28	1,210	1,200	1.477	2,410	2.96
Office Machine Mechanics	570	.06	930	.07	1,110	.08	180	100	2.150	280	6.10
Radio and TV Mechanics	1,800	.18	2,270	.18	2,390	.18	120	120	1.057	240	2.11
Railroad & Car Shop Mechanics	730	.07	720	.06	720	.05	0	80	2.222	80	2.22
Other Mechanics & Repairmen	20,090	1.97	33,120	2.57	36,380	2.70	3,260	3,560	2.149	6,820	4.11
Other Craftsmen and Kindred	21,200	2.08	25,800	2.00	27,870	2.07	2,070	2,770	2.147	4,840	3.75
Bakers	1,730	.17	1,780	.14	1,740	.13	- 40	220	2.471	180	2.02
Cabinetmakers	1,530	.15	1,620	.13	1,640	.12	20	180	2.222	200	2.61
Crane, Derrick, Hoistmen	2,630	.26	3,560	.28	4,070	.30	510	300	1.685	810	4.55
Glaziers	380	.04	530	.04	630	.05	100	170	6.415	270	10.18
Jewelers and Watch Makers	710	.07	700	.05	680	.05	- 20	80	2.285	60	1.71
Opticians, Lens Grinders	320	.03	390	.03	420	.03	30	40	2.051	70	3.59

Occupation	Calendar 1960 Estimates	Percent of Average Employment	Calendar 1970 Estimates	Percent of Average Employment	Calendar 1975 Estimates	Percent of Average Employment	Calendar 1970-1975 Expansion	Calendar 1970-1975 Replacement Needs	Average Replacement Needs Percent Per Year From 1970 Estimate	Total Demand 1970-1975	Average Total Demand Percent Per Year From 1970 Estimate
Inspectors, Log & Lumber	2,070	.20	2,320	.18	2,700	.20	380	220	1.896	600	5.17
Inspectors, Other	1,320	.13	1,530	.12	1,630	.12	100	160	2.091	260	3.39
Upholsters	990	.10	1,230	.10	1,310	.10	80	130	2.113	210	3.41
Craftsmen & Kindred Workers, Nec.	9,520	.93	12,140	.94	13,050	.97	910	1,270	2.092	2,180	3.59
Operatives	149,290	14.63	179,880	13.96	181,790	13.49	1,910	18,010	2.002	19,920	2.21
Drivers and Deliverymen	35,680	3.50	43,370	3.37	46.640	3.46	3,270	3,050	1.406	6,320	2.91
Drivers, Bus, Truck, Tractors	27,920	2.74	32,860	2.55	34,900	2.59	2,040	2,380	1.448	4,420	2.69
Deliverymen and Routemen	7,760	.76	10,510	.82	11,740	.87	1,230	670	1.275	1,900	3.61
Transportation and Public Utility	4,440	.44	4,770	.37	4,900	.36	130	390	1.635	520	2.18
Brakemen, Switchmen, RR	2,130	.21	2,180	.17	2,150	.16	- 30	160	1.467	130	1.19
Power Station Operators	980	.10	1,140	.09	1,230	.09	90	100	1.754	190	3.33
Sailors and Deck Hands	1,330	.13	1,450	.11	1,520	.11	70	130	1.793	200	2.75
Semiskilled Metalworking Occupations	12,360	1.21	13,970	1.08	12,720	.94	-1,250	1,240	1.775	- 10	- .14
Furnacemen, Smeltermen, Pourers, Heaters	630	.06	780	.06	850	.06	70	80	2.051	150	3.84
Welders and Flamecutters	4,910	.48	7,110	.55	7,280	.54	170	580	1.631	750	2.10
Operatives (cont.)											
Assemblers, Metalworking, Class A	620	.06	550	.04	420	.03	- 130	50	1.818	- 80	-2.90
Assemblers, Metalworking, Class B	1,650	.16	1,440	.11	1,110	.08	- 330	130	1.805	- 200	-2.77
Insp., Metalworking, Class B	810	.08	750	.06	560	.04	- 190	60	1.600	- 130	-3.46
Mach., Tool Ops., Class B	3,400	.33	3,030	.23	2,200	.16	- 830	310	2.046	- 520	-3.43
Electroplaters, Helpers	340	.03	310	.02	300	.02	- 10	30	1.935	20	-1.29
Semiskilled Textile Occupa.	1,770	.17	2,430	.19	2,680	.20	250	810	6.666	1,060	8.72
Textile Weavers, Related	170	.02	150	.01	140	.01	- 10	10	1.333	0	0.00
Sewers, Stitchers, Mfg.	1,600	.16	2,280	.18	2,540	.19	260	800	7.017	1,060	9.29
Other Operatives	95,040	9.32	115,340	8.95	114,850	8.52	- 490	12,520	2.170	12,030	2.30
Asbestos, Insulation Wks.	420	.04	600	.05	630	.05	30	40	1.333	70	2.33
Attendants, Auto Service, Parking	5,920	.58	7,930	.62	8,440	.63	510	310	.718	820	2.06
Blasters & Powdermen	220	.02	300	.02	390	.03	90	20	1.333	110	7.33
Laundry, Dry Cleaning Operatives	5,450	.53	6,170	.48	5,870	.44	- 300	1,200	3.889	900	2.91
Meat Cutters, exc. Meat Packing	2,580	.25	3,520	.27	3,320	.25	- 200	290	1.647	90	.51
Mine Operatives and Laborers, Nec.	660	.06	520	.04	550	.04	30	50	1.923	80	3.07
Other Operatives, Nec.	79,790	7.82	96,300	7.48	95,650	7.10	- 650	10,610	2.203	9,960	2.06

Occupation	Calendar 1960 Estimates	Percent of Average Employment	Calendar 1970 Estimates	Percent of Average Employment	Calendar 1975 Estimates	Percent of Average Employment	Calendar 1970-1975 Expansion	Calendar 1970-1975 Replacement Needs	Average Replacement Needs Percent Per Year From 1970 Estimate	Total Demand 1970-1975	Average Total Demand Percent Per Year From 1970 Estimate
Service Workers	120,150	11.78	166,320	12.91	182,410	13.53	16,090	38,160	4.589	54,250	7.32
Private Household Workers	25,620	2.51	32,600	2.53	29,200	2.17	- 3,400	11,110	6.809	7,710	4.73
Protective Service Workers	10,340	1.01	11,470	.89	13,610	1.01	2,140	1,610	2.807	3,750	6.53
Firemen	2,620	.26	2,920	.23	3,610	.27	690	170	1.164	860	5.89
Guards, Watchment, Doorkeepers	3,770	.37	4,020	.31	4,140	.31	120	920	4.577	1,040	5.17
Policemen, Other Law Enforcement Officers	3,950	.39	4,530	.35	5,860	.43	1,330	520	2.295	1,850	8.16
Waiters, Cooks, Bartenders	32,580	3.19	47,550	3.69	53,970	4.00	6,420	9,230	3.882	15,650	6.58
Bartenders	3,620	.35	4,890	.38	5,540	.41	650	630	2.576	1,280	5.23
Cooks, exc. Private Household	11,720	1.15	17,290	1.34	19,540	1.45	2,250	3,450	3.990	5,700	6.59
Counter and Fountain Workers	1,570	.15	2,760	.21	3,350	.25	590	530	3.840	1,120	8.11
Waiters and Waitresses	15,670	1.54	22,610	1.75	25,540	1.89	2,930	4,620	4.086	7,550	6.67
Other Service Workers	51,610	5.06	74,700	5.80	85,630	6.35	10,930	16,210	4.340	27,140	7.26
Airline Stewards and Stewardesses	240	.02	510	.04	740	.05	230	110	4.313	340	11.33
Attendants, Hospital, Other Inst.	6,600	.65	9,850	.76	12,510	.93	2,660	1,970	4.000	4,630	9.40
Charwomen and Cleaners	2,180	.21	3,330	.26	4,050	.30	720	820	4.925	1,540	9.24
Janitors and Sextons	12,440	1.22	17,320	1.34	19,510	1.45	2,190	3,730	4.307	5,920	6.83
Nurses, Practical	4,890	.48	7,530	.58	9,710	.72	2,180	2,030	5.391	4,210	11.18
Service Workers, Nec.	25,260	2.48	36,160	2.81	39,110	2.90	2,950	7,550	4.175	10,500	5.80
Laborers, Except Farm and Mine	63,070	6.18	67,790	5.26	62,170	4.61	- 5,620	6,190	1.826	570	.17
Farmers and Farm Workers	58,310	5.72	46,370	3.60	41,110	3.05	- 5,260	6,960	3.001	1,700	.73

APPENDIX 3B: SUMMARY OF FORECASTING METHOD AS OUTLINED IN "FORECASTING GUIDE: EMPLOYMENT/ENROLLMENT"

SUMMARY OF FORECASTING METHOD AS OUTLINED IN "FORECASTING GUIDE:EMPLOYMENT/ENROLLMENT"

A forecasting method currently being tested by the Coordinating Council for Occupational Education attempts to relate trends in "the percentage of average employment" and "the percentage of enrollees in specific occupational fields". The final result of this forecasting method is a comparison of projected output (graduates seeking and obtaining employment in a specific occupational area) with the estimated demand (projected employment force in the same specific occupational area) for a given projected time period.

Before listing specific data inputs required by this forecasting method, it is important to look at the general assumptions upon which the forecasting system is based. These assumptions include the following:

1. That the education and training in a "comprehensive school system" should generally reflect or mirror the skills of the world in which the students will find themselves.

2. That the "percentage of the work force" or "percentage of average employment" in most occupational fields changes slowly. When it is evident that in a particular occupation the percent is not remaining constant, that the rate of change can be used to modify the projected "percent of the work force" or "percent of average employment" in the occupational field.

3. That if the percentage of total enrollment in a "comprehensive system" enrolled in an occupational field does not exceed the "percent of average employment" in the field, the supply will not exceed the demand.

4. That when it is evident that in a particular occupational field the percentage should be modified for the purposes of calculating enrollments, factors for specific reasons should be applied to modify the percentage.

5. That when in an individual "comprehensive" school the percent of that school's total students who are enrolled in an occupational field exceeds the percent of the modified average employment in the field, a check should be made of the total state system to determine whether or not there is actually a projected surplus or whether selected schools enroll a higher percent share of the total.

6. That a percentage of the work force is in jobs for which: (1) professional or general programs are appropriate; (2) vocational programs are appropriate; (3) school programs are not needed or appropriate; and that when calculations are made regarding percentages of the work force for these purposes, the groups of occupations for which training is not appropriate should not be considered in the calculations.

Using these various assumptions, the forecasting method requires the collection of a considerable amount of population, employment and enrollment data for the State of Washington. Most of the data as required is available through the United State Census, the enrollment reports from the various educational institutions, and the most recent manpower projections for the State. The sequence of steps involved in the forecasting method itself can be summarized as follows:

1) First of all, the expansion and replacement needs in each occupational field to be considered must be computed for the duration of the projection period. These expansion and replacement requirements are generally available through the Department of Labor; however, in some cases they may have to be computed as an estimated percentage of the overall employment rate for the projected period.

2) The next step is to project the potential vocational enrollments in each of the educational institutions within the system being studied. This is generally done for each institution by using the projected total enrollments in the institution and applying some percentage of that total for the vocational share of all projected enrollments. These projected enrollments are generally done on a FTE basis.

3) Having arrived at the overall projected potential vocational enrollment for the system under study, we next project the percentage of that enrollment in programs directly related to specific occupational fields upon which the projection is based. It is necessary to examine both first-year enrollments and completions for each of the specific vocational programs

under study. Based upon present and past enrollment and completion rates, it should be possible to estimate the total number of completions in related programs over the projected period.

4) The ratio of completions to persons actually entering employment in a particular field must next be computed for each of the occupational fields under study. This is generally done by obtaining data on the number of enrollees actually seeking and obtaining employment in the particular occupational category.

5) The final step is simply one of comparing expected or projected output of persons obtaining employment in the particular occupational field with the estimated demand as described in #1 above. Obviously, if this ratio is less than 1, we can assume that the educational system could very well increase its enrollment in the various related training programs. If, on the other hand, the ratio exceeds 1, we might reasonably assume that student enrollment is already higher than needed to supply the manpower demand.

These steps as outlined above only briefly describe the forecasting method currently under study by the Coordinating Council for Occupational Education. Further information on this forecasting method and the results obtained to date can be obtained through the Research Department, Coordinating Council for Occupational Education, State of Washington.

CHAPTER 4

WORK EXPERIENCE AND VOCATIONAL EDUCATION

As early as 1967, the National Advisory Council on Vocational Education, in its recommendation for a "unified system of vocational education", suggested:

> "Occupational preparation need not and should not be limited to the classroom, to the school shop, or to the laboratory. Many arguments favor training on the job. Expensive equipment need not be duplicated. Familiarization with the environment and discipline of the work place is an important part of occupational preparation, yet it is difficult to simulate in a classroom. Supervisors and other employees can double as instructors. The trainee learns by earning."[1]

This earn and learn approach to vocational training is not at all new in educational circles. The apprenticeship model as promoted by Benjamin Franklin in the early academies emphasized the reality of the working world as an essential training station. The cooperative education programs such as diversified occupations and distributive education have for many years provided a significant on-the-job experience for trainees. Recent federal legislation (e.g., the 1968 amendments to the Vocational Education Act) has given further support to the so-called employer-based model for vocational education. In a speech presented at a recent career education conference, former U.S. Commissioner of Education, Harold Howe II, stated his preference for the employer-related training model as one of the most hopeful developments of the recent career emphasis in education. In defending this position, he said:

> "The reason I make this suggestion is that I believe schools, and particularly secondary schools, are entirely too locked within their own walls. Many of the resources that are potentially most stimulating, both for the general learning of high school students and for their occupational concerns, are just not in the school. To some extent this difficulty can be solved by bringing outside resources into the school, but there are serious practical limitations in this approach. The experience of the Parkway School in Philadelphia and of some other venturesome experiments in conducting high school education away from the classroom indicates that

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[1] Career Education: A Handbook for Implementation, U.S. Dept. of HEW, Feb. 1972, p. 35

> in the employer-located model there is real hope in enlisting the enthusiasm of the students as well as making their education more practical in the job opportunity sense by taking the learning process to the place where the real work of the world is being done."[1]

This statement of support for employer-based vocational training by a former U.S. Commissioner of Education is being echoed by numerous educators and civic leaders throughout the country and such sentiment is beginning to be reflected in both legislative support and educational planning. The work study programs described in Chapter 2 of this report (at Castle Rock and Stadium high schools in Washington State) are only two recent examples of this effort to expand employer-based learning in both orientation and training programs.

In assessing this increased emphasis upon employer-based programs, several important questions or concerns must be examined. Among these are the following:

- What are the attitudes of teachers, parents, and students toward increased emphasis on job experience as part of the education process for all students?
- What barriers exist in terms of expanding work experience, particularly in a time when unemployment of trained workers is a critical social concern?
- For which job classifications is on-the-job experience most important and is it inappropriate in some situations?
- What additional coordination costs are involved in employer-based training programs?
- What parts of the present educational program will have to be replaced in order to accommodate more employer-based training or should such training be considered as supplementary in nature?

While the SCR-23 staff and Steering Committee proposes no final answer to these several questions, succeeding sections of this chapter present data pertaining to their resolution. Much of the data as presented here results from recent surveys conducted within the State of Washington and should therefore pertain to the needs and desires of our own citizenry. The final section of the chapter suggests some steps which might be taken to lessen the present barriers to job experience and to promote a reasonable expansion of employer-based educational opportunities.

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[1] Howe, Harold II, "Implications of Career Education," Proceedings of the Conferences on Career Education, Washington, DC, May, 1972, p. 27.

Attitudes Toward Vocational Education and Employer-Based Training

The Washington State Advisory Council on Vocational Education in its Annual Report of 1971 directed considerable attention to a survey on the image of vocational education in the State of Washington. In Table 4.1a, we note that the respondents (a group of 1000 users of vocational education services) included in the Advisory Council statewide survey were generally supportive of expenditures on vocational education and did not view vocational programs to be less important than those classified as academic. As specific examples of this support for vocational programs, we see that almost 70 percent of the respondents felt that too much emphasis is already being placed upon college programs (Statement #2, Table 4.1a) and only 9 percent feel that all people are better off with a bachelor's degree (Statement #3, Table 4.1a). Such results indicate a significant support for the view that many students are more adequately served by the vocational programs of our schools and colleges.

One of the more recent and comprehensive surveys of attitudes toward vocational education was conducted during the 1970-71 school year in nine school districts in the suburban Seattle area. This survey was conducted in conjunction with the Northeast Vocational Advisory Council (NEVAC) and attempted to assess student, staff, and parent attitudes toward various aspects of vocational education. The specific instrument used in gaining measures of attitude asked each respondent to indicate on a five-point scale the extent of his agreement

TABLE 4.1a

"USER" VIEWPOINTS ON VOCATIONAL EDUCATION[a]

Statement	Percent Responding by Category		
	Agree	Disagree	No Opinion
1. Vocational education is mostly for those who can't afford to go to college.	11.8	84.8	3.4
2. Too much emphasis is being placed upon a college education in our high schools.	69.6	23.8	6.6
3. Everyone is better off with a bachelor's degree.	9.3	82.4	8.3
4. The government should spend more money on higher education than *more* money on vocational education.	10.1	89.9	--

[a] The data for this Table comes from analysis of questionnaires received from 1000 persons selected from various user groups. The user groups included teachers, students, administrators, parents, and representatives from agriculture, business and industry, and labor.

with various statements relating to vocational education. The precise instrument used in obtaining these attitude measures is contained in Appendix 4A of this report.[1] The reader should note that a 1-5 scaling on attitude items was used with 1 indicating a strong agreement with the statement and 5 indicating strong disagreement. A 3.0 rating indicates a neutral response. In examining the summary data in Table 4.1b, we note that all three respondent groups -- students, staff, and parents -- indicate strong support for vocational education and view it as valuable for all students. Staff and parent respondent groups (with mean scores of 2.30 and 2.47 respectively) indicate an even more positive view toward the value of vocational education than do the students. Since all three groups have a generally neutral response to Item #2 in Table 4.1b, we conclude that those persons most closely associated with the secondary schools see vocational programs as having equal status with other programs of the school. It is interesting to note that, of the three respondent groups, the staff tend most often to view vocational courses as having a lower status in the school. All three groups, and particularly the school staff, disagree strongly with the view that vocational courses are generally a poor way to prepare for job entry.

With reference to the desire for more emphasis on job experience as part of the school program, we find that all three groups -- students, staff, and parents -- are in agreement. This agreement that job experience is a desirable part of the school curriculum was given further support when the various respondent groups were asked to indicate items which would lead to the most significant improvement in the vocational education programs. In Table 4.1c we see that all respondent groups, including a group of recent graduates from vocational education programs, rate "more related on-the-job experience" as the single most important factor in improving vocational education in the common schools. Recent

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[1] The specific instrument as included in Appendix 4A was used for obtaining attitudes of students. Parents and staff questionnaires were quite similar and included exactly the same general attitude measures.

TABLE 4.1b

ATTITUDES TOWARD VOCATIONAL EDUCATION[a]

Statement[b]	Mean Scores[c]		
	Students	Staff	Parents
1. Vocational education is valuable for all students.	2.63	2.30	2.47
2. Vocational courses generally have a low status in the school.	3.09	2.72	2.95
3. Vocational courses are generally a poor way to prepare for job entry and students are generally better off to stick with academic courses.	3.49	3.88	3.72
4. Students desire more opportunities for job experience as part of the regular school program.	2.61	2.64	2.60

[a] These are attitudes as expressed by students, staff, and parents in the nine common school districts participating in the Northeast Vocational Advisory Council (NEVAC). These districts include Bellevue, Edmonds, Issaquah, Lake Washington, Mercer Island, Northshore, Renton, and Snoqualmie Valley.

[b] The statements represent the composite average on several questions as listed on the questionnaire in Appendix 4A of this report. The questions corresponding to each statement are as follows: Statement #1 -- Question #6, 15, 50; Statement #2 -- Question #5, 18, 29; Statement #3 -- Question #10, 24, 31, 35; Statement #4 -- Question #39, 44, 46. The direction (positive or negative) of each question was made to coincide with the statements as listed above prior to analysis.

[c] The means are computed on a five point scale with 1 being strongly agree and 5 being strongly disagree. A mean of 3.0 represents a neutral response.

TABLE 4.1c

MEANS OF IMPROVING VOCATIONAL EDUCATION PROGRAMS[a]

Response Choices[b]	Percent of Respondent Group[c]			
	Students	Staff	Parents	Graduates
More related on-the-job experience	63.5	72.2	69.2	58.5
Teach more job skills	58.4	63.2	68.8	32.4
Provide greater curriculum variety	42.8	51.2	36.2	29.7
Use more occupational resource persons	42.2	62.8	63.9	34.3
Teach more personal relations skills	34.4	38.8	36.9	28.3
Emphasize more organizational skills	18.5	22.5	21.3	17.5
Teach more speaking skills	12.2	13.0	15.6	11.2
Teach more reading skills	10.1	21.0	19.8	5.7
Teach more math skills	5.6	6.5	14.2	8.1
Teach more writing skills	5.0	6.5	14.2	8.1
Other	6.2	5.0	2.4	5.7

[a] Each respondent was asked to check those items which would lead to the most significant improvement in vocational education programs.

[b] Each respondent was allowed to check up to four of the items as listed.

[c] The student, staff, and parent samples were a representative cross section of the entire population group associated with NEVAC schools. The graduate group was a representative sample of persons graduating in 1967 from vocational programs in the NEVAC schools.

graduates of vocational programs ranked this particular factor almost twice as often as any other single item on the list. In a more recent survey of employer attitudes (as described in Chapter 6 of this report), we find that "more related on-the-job experience" is again ranked as the most important factor in improving vocational programs. Over 60 percent of both management and labor groups included in this latter survey cited this job experience factor as an important improvement in vocational preparation programs. In response to a separate question, this group of employers responded quite favorably toward the development of a greater amount of on-the-job experience as part of all training programs. Reasons most often cited for this particular view were the following:

- Work experience is invaluable and is often preferable to classes as a learning experience.
- Work experience lets the person know firsthand how he will like a specific type of work.
- Experience is the best way to learn the skills required in a specific job.
- On-the-job experience as part of the training program eases adjustment to the working world.
- The job situation permits the employer and employee to assess one another.

This rating of "more related on-the-job experience" as one of the most important needs in vocational education may, in part, be attributed to the fact that Washington State has not traditionally been among the most aggressive in pushing for this model as a training priority. According to "Project Baseline", (a project of the National Advisory Council for Vocational Education), Washington State is among the leaders nationwide in total vocational enrollment served; however, it ranks well below the average in the cooperative and work-study categories, with only 4.9 percent of all Washington State vocational enrollments in these two categories as compared with 7.1 percent for the nation as a whole.

If the data obtained from the survey efforts described in this report are at all generalizable to the entire state education system, we can reasonably conclude that vocational education has strong public support as a quality educational investment. We can further assume that considerable support exists for expanding on-the-job or employer-based instruction as part of all programs. In fact, this support for expanding on-the-job training is so substantial (at least as observed in various attitude inventories) that one might ask why such expansion has not already been accomplished. The obvious answer is that barriers, particularly of an attitudinal and financial nature, have prevented the kind of job experience expansion that most people deem desirable. In the next section, we look more carefully at some of these barriers.

Barriers to Increasing Work Experience

The barriers to increasing work experience and employer-based learning experiences are several. The tradition of having students educated in a separate institution or school is perhaps the most significant of all barriers. Along with the compulsory secondary school attendance regulations (which accompanied the Industrial Revolution and the eventual removal of demands for child labor) in the late 1800's and the subsequent rapid growth of both secondary school and college enrollments has come a societal expectation that school is the place where young people spend the greatest part of their time. Not only has society grown to expect that students will be educated almost entirely in a school environment but the schools themselves have often become quite possessive of their unique and understandably important role in the education process. Given these factors, it is only reasonable that people will somewhat reluctantly permit altering the tradition of school-based education.

Looking beyond this general commitment to traditional schooling patterns, we can identify several other specific barriers to expanding employer-based learning in public secondary schools, vocational-technical institutes, and colleges. Since many of these barriers represent quite valid concerns expressed by persons familiar with training needs and programs, let us, prior to proposing any reasonable extension of work experience, examine certain of these barriers in further detail:

Concerns of Replacing Present Employees - In an economy suffering from high unemployment rates, it is understandable that people, and particularly the employees in less skilled jobs, would be concerned that extension of work experience programs might threaten their job security. In Table 4.2a we note that this concern over job security was most often cited by both management and labor groups as a barrier to expanding on-the-job experience. Several employers included in this particular survey (conducted statewide by the BSSR, UW) indicated that rather tight limitations on numbers of job trainees were already part of negotiated agreements with labor unions. These limitations were more likely mentioned by manufacturing and construction firms and seemed to be less of a barrier in the service-producing industries. Any effort to expand training opportunities on an employer-based model must realistically consider the opposition generated by this potential loss in job security and will probably have to build in certain controls to satisfy labor unions and other groups representing employee interests.

Concerns over Specificity of Training - Many observers and leaders in the vocational education field have expressed legitimate concerns over the specificity of training often inherent in employer-based training situations. Quite often, the student receiving his on-the-job training in a particular firm or government agency is exposed to only a very limited segment of job skills and is therefore less qualified to hold related positions in other firms or agencies. In other words, the training received by certain students can become so specific to a particular job in a particular firm that they become very limited with respect to potential employment. It is largely

TABLE 4.2a

BARRIERS TO EXPANDING WORK EXPERIENCE[a]

Responses Identifying Barriers to Expanded Work Experience	Management Group[b]		Labor Group[c]	
	Number	Percent of Sample	Number	Percent of Sample
Opposition by organized employee group	21	15.9	2	3.5
Limited time for supervision	9	6.8	1	1.8
Inadequate funds	25	18.9	4	7.0
Limited facilities	5	3.8	--	--
Problems with scheduling hours	3	2.3	--	--
Potential trainees lack required specialized skills	2	1.5	1	1.8
No need for additional trainees	7	5.3	2	3.5
Other	6	4.5	3	5.3
Don't know	9	6.8	18	31.6

[a] The number and precent of management and labor respondent groups citing each of the specified barriers is recorded in this Table. The data was collected in connection with a statewide employer survey conducted by the Bureau of School Service and Research, University of Washington and included three respondents from each of 63 firms or government agencies.

[b] The management group consists of 132 respondents involved in either central office personnel work or line supervision.

[c] The labor group includes 57 respondents who have no management or supervisory responsibilities in the firm or agency.

this problem of specificity of training which has encouraged numerous educators and business leaders involved in cooperative work experience programs to systematically expose students, particularly in the early phases of their training, to a wide variety of positions within the firm or agency to which they are assigned.

While this effort to expand the content and exposure of employer-based learning is to be commended, it is often difficult to accomplish due to the rather limited scope of operation in certain industries or firms. Any move toward extending the amount of on-the-job experience must consider this limitation which many smaller firms present and must do everything possible to incorporate systems for expanding the scope of learning. It is likely that some kind of central coordination will be required in assuring that the employment potential of the individual student is not unduly restricted as a result of having received too much specificity in job skill training.

Concern over Qualification and Commitment of Supervising Personnel - Several vocational leaders involved in cooperative programs have stated that the learning experience is generally dependent on the qualifications and commitment of the supervising worker. Often regular employees are either lacking in the specific knowledge required to communicate the attitudes and skills of their particular occupation or are simply unable or unwilling to commit the time necessary to accomplish the supervisory task. Since it is unrealistic to assume that any person skilled in a particular sport will necessarily become a good coach or teacher, any plan for assigning trainees to employment training stations in the working world must systematically evaluate the teaching capabilities of supervisory personnel. This systematic evaluation must consider a wide variety of personal factors including ability to communicate job skills, ability and willingness to work with young people, sensitivity to the broad educational needs of each trainee, and willingness to create a challenging learning experience for each student.

Concerns over Financing the Cost of Employer-Based Training - Several of the concerns discussed above relate in one way or another to the additional costs involved in designing a good employer-based training model. If employers are to accept responsibility for a greater share of training in areas of vocational education and are also to broaden the training base for each individual student, they can reasonably expect some assistance in terms of the additional costs involved. Furthermore, if employers are expected to assign supervisory responsibilities to their most able and qualified personnel, they are likely to need financial help to offset losses in the production process. As one employer in the recent survey indicated, "We succeed or fail in this competitive climate depending upon our ability to produce at a minimum cost. We simply can't justify pulling production workers off the line so that they can work with trainees who are also being paid."

While this view as expressed by one management executive is perhaps more common in goods-producing industries than it is in the service-producing sector of our economy, recent evidence (obtained through a statewide survey of employers) suggests that some general public funding will be needed if we are to implement any significant extension of employer-based learning opportunities. According to data available through the Coordinating Council for Occupational

Education, we already know that cooperative programs such as distributive education,FEAST, and business and office training increase substantially the cost of education on a per-hour basis. It would appear that just the job placement and coordination responsibilities involved in such programs entail two or three times the per-hour cost of instruction for the academic programs. If indeed we are to channel certain supervisory support into the participating businesses and industries, it is expected that we will either have to replace certain of the programs currently operating in our common schools and colleges or increase even more the cost differentials as already noted. There is little question but what any reasonable expansion of the job experience aspect of vocational education will require a greater financial commitment.

A Reasonable Expansion of Work Experience Programs

While it is true that almost all client and participant groups associated with schools -- namely, parents, students, staff, and employers -- would like to see more emphasis upon job experience as part of the educational program, such an extension must be assessed in light of the above mentioned concerns. These concerns, and particularly the one regarding cost, must be considered prior to recommending any general and wholesale extension of the employer-based model for vocational education. Rather than outline a specific model for expansion of on-the-job experience, it seems appropriate here to simply outline several factors which must be considered by the various legislative and common school/ college governing boards as they proceed to develop a reasonable expansion of work experience opportunities for students.

First is the problem of attitude toward work experience as a legitimate educational activity. In the past, both school officials and students have tended to view employment as something likely to interrupt the student's progress through school, and as a distraction to his concentration on academic endeavors. Any effort to extend work experience in our schools should be accompanied by an effort to gain greater acceptance for the fact that school and gainful employment are not conflicting but are compatible and essential ways in which a student makes a transition from adolescence to adulthood. Even though students may not have accepted a particular area of work for a chosen career, there is ample evidence that the experience and training inherent in work itself leads to much more positive feelings about school experience.

Incorporating job experience programs for the vast majority of secondary school and college students will unquestionably require a reassessment of present expectations and requirements for graduation. Students, teachers, and parents are in general agreement that job experience programs of various types should count toward fulfillment of basic graduation requirements. Recent decisions by the State Department of Education indicate a willingness to accept job experience as a legitimate and worthwhile part of basic education programs for all students. Even more important than this change in outlook toward specific graduation requirements is a need for schools generally to encourage the development of new attitudes toward earning and learning and begin serious efforts to tap career exploration and training opportunities within the local communities.

A second major factor to be considered in any reasonable expansion of the work experience model is the need for constant and quality coordination and supervision of all training stations. In the State of Washington, there is ample evidence that reassigning a student to some worker in the business community does not, in itself, assure an appropriate learning experience. Not only are additional personnel required in locating appropriate career exploration and training stations, but it is also necessary to assess the validity of a particular training situation in light of the student's overall personal goals and educational needs. Since many young people in their high school and college years are still exploring several potential career possibilities, it can be expected that selected students will occasionally desire and need a change in their work or training station. Others will be faced with employer-employee disagreements which require intervention of a training officer or counselor. Any plan for the reasonable expansion of work experience in our secondary schools and colleges must be based upon a somewhat higher staff to student ratio than that which exists in the typical school-based program. The differential cost for coordinating and supervising personnel has already been included in most of the cooperative programs funded by federal and state legislation and any extension to an even greater number of our high school and college students must include some consideration for these additional staffing needs.

This staffing differential required for work experience programs leads directly to a third and final factor of cost. To assume that the desired relationship between education and occupational opportunities will develop without redirecting a share of our educational funds to this new function would seem unrealistic. The National Advisory Council on Vocational Education, in its report in January 1971, expressed concern that far too many local school districts and colleges had, in the past, viewed federal and state support for vocational education as a ceiling for expenditures rather than an incentive for the development of more diversified and useful programs for students. Clearly, this tendency must be reversed if any major improvement in occupational education is to occur.

As a further note on funding, it is unlikely that the entire financial burden inherent in expansion of work experience programs can be borne by additional monies at the federal, state, or even local levels. Some consideration will likely have to be given to redirecting some funds currently being channeled into academic programs. Yet, this redirection will have to take place with a minimum of dislocation for persons presently employed in our schools and colleges. Certain of the new funding sources as well as those funds redirected from existing school programs will undoubtedly have to be channeled in appropriate resource and supervisory persons in employing institutions. Placement of large numbers of students in employing stations (or in simply exploratory relationships in various occupational areas) will simply not be accomplished without some support to the cooperative employing agencies or firms. A recent survey of representative employers throughout the state indicates that their willingness to accept trainees increases rather significantly if outside public support is available to offset additional supervision costs. No matter how much public support and enthusiasm might exist for expanding job opportunities (and presumably relevance) as part of the learning experience, it is unlikely that such expansion will generally improve the present state of education unless a realistic combination of increased and redirected funding is built into the overall planning effort.

APPENDIX 4A: STUDENT QUESTIONNAIRE

Vocational Education Study

STUDENT QUESTIONNAIRE

Explanation and Instructions:

Your school district is cooperating in a study with the County and State Offices of Public Instruction, and the Bureau of School Service and Research at the University of Washington.

This study is being conducted in preparation for suggesting some program improvements which will respond to needs not being met by your present educational programs. This questionnaire relates only to one aspect of the study, and your accurate and honest answers to all items can help in this effort to improve education for both present and future high school students.

No names will be used in compiling or distributing the results from this questionnaire.

Please answer all items by circling the number or numbers in the ANSWER COLUMN which best correspond to your RESPONSE CHOICES. Note any special instructions given. Disregard index numbers in the upper right corner of the ANSWER COLUMN.

Thank you for your assistance!

ITEM	RESPONSE CHOICES	ANSWER COLUMN	
Circle the number corresponding to your age classification.	14 or under	1	1
	15	2	
	16	3	
	17	4	
	18 or over	5	
Circle the number corresponding to your grade level designation.	Freshman	1	2
	Sophomore	2	
	Junior	3	
	Senior	4	
Please indicate your sex by circling the appropriate number in the answer column.	Male	1	3
	Female	2	
Circle the category in the answer column which corresponds to your grade point average.	Less than 1.5	1	4
	1.5 - 2.0	2	
	2.0 - 2.5	3	
	2.5 - 3.0	4	
	3.0 - 3.5	5	
	3.5 - 4.0	6	

For each of the statements which follow, indicate whether you "strongly agree," "agree," are undecided ("neutral"), "disagree," or "strongly disagree" by circling the appropriate letter(s) in the ANSWER column to the right of the item. Circle only one choice in responding to each statement.

Attempt to respond to each question or statement independently.

	ANSWER				
STATEMENT	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Some high school courses provide skills directly useful on jobs.	SA	A	N	D	SD
2. Students who intend to go to college should be able to take several vocational courses and still meet college entrance requirements.	SA	A	N	D	SD
3. Most students go to their counselor to find out about job opportunities.	SA	A	N	D	SD
4. College bound students usually have an easy time in vocational courses.	SA	A	N	D	SD
5. Vocational courses have a lower status among students than academic classes.	SA	A	N	D	SD
6. Vocational courses are valuable for everyone.	SA	A	N	D	SD
7. A person deserves high school credit for successfully holding a part-time job.	SA	A	N	D	SD
8. There is little difference between the performance of vocational students and college bound students in most classes.	SA	A	N	D	SD
9. Few students in the college bound program will actually graduate from college.	SA	A	N	D	SD
10. Students who plan to go to college would waste their time in vocational classes.	SA	A	N	D	SD
11. Most students will take a class even if they know very few of the other people in the class.	SA	A	N	D	SD
12. Most teachers teach their classes as if all the students were going to go to college.	SA	A	N	D	SD
13. Most students who take mainly academic courses will not go to college.	SA	A	N	D	SD
14. Most students who take mainly vocational programs will not go to college.	SA	A	N	D	SD
15. Most teachers would advise a college bound student to take some vocational courses.	SA	A	N	D	SD
16. Most teachers would favor an extension of the vocational education program in their high school.	SA	A	N	D	SD
17. Most students take classes because their friends are in them.	SA	A	N	D	SD
18. Most vocational teachers have a lower status in the school than the teachers of academic classes.	SA	A	N	D	SD
19. Schools get too big when both vocational and academic programs are in one school.	SA	A	N	D	SD
20. Most teachers give fewer high grades in classes composed of vocational students.	SA	A	N	D	SD

STATEMENT	ANSWER Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21. Students in vocational programs ought to have a school of their own.	SA	A	N	D	SD
22. Vocational students tend to do well in both vocational and academic classes.	SA	A	N	D	SD
23. Students in college preparatory programs do not develop an appreciation of good hard work.	SA	A	N	D	SD
24. Students with programs emphasizing vocational courses would fail in many academic classes.	SA	A	N	D	SD
25. Students from academic programs tend to have an easier time finding jobs than students from vocational programs.	SA	A	N	D	SD
26. Most teachers would rather teach vocational students.	SA	A	N	D	SD
27. College bound students do not know the value of work.	SA	A	N	D	SD
28. Most teachers would rather teach college bound students.	SA	A	N	D	SD
29. Most vocational teachers feel that their classes attract lower achievers than those attracted to academic classes.	SA	A	N	D	SD
30. The library is the main source of information about jobs.	SA	A	N	D	SD
31. Students who plan to go to work after high school graduation are more likely to get a job if they have taken vocational courses.	SA	A	N	D	SD
32. Most students feel school is a waste of time.	SA	A	N	D	SD
33. Vocational courses will have to change before they will attract college bound students.	SA	A	N	D	SD
34. There is no way high school can directly prepare students for work.	SA	A	N	D	SD
35. Students not planning to go to college are still better off in an academic program.	SA	A	N	D	SD
36. There should be "vocational" courses for students who are interested in careers as engineers, architects, etc.	SA	A	N	D	SD
37. It is a good idea for students from both vocational and academic programs to be together in one school.	SA	A	N	D	SD
38. Students often sign up for vocational courses because they are easier.	SA	A	N	D	SD
39. Most students would rather be with their friends in school than getting on-the-job experience.	SA	A	N	D	SD
40. Vocational courses provide students with skills needed on the job.	SA	A	N	D	SD
41. Most students are of little help in providing information about vocations.	SA	A	N	D	SD
42. Most teachers don't know which of their students are college bound and which are vocational.	SA	A	N	D	SD

	ANSWER				
STATEMENT	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
43. Most students feel that school is satisfying some of their needs very well.	SA	A	N	D	SD
44. Even if credit toward graduation were given for on-the-job experience, most students would prefer to pursue their regular course of studies in the school.	SA	A	N	D	SD
45. Most students in high school today will end up in jobs which don't really require a college degree.	SA	A	N	D	SD
46. If they would still graduate with their class, many students would choose to work outside school for some part of the school year.	SA	A	N	D	SD
47. Most teachers support the concept of vocational education.	SA	A	N	D	SD
48. Most counselors know more about colleges than about jobs.	SA	A	N	D	SD
49. Most parents push their children to go to college.	SA	A	N	D	SD
50. Most teachers would favor abolishing the vocational program.	SA	A	N	D	SD
51. Most parents believe that a college education is essential for the success of their children. . . .	SA	A	N	D	SD
52. Careers Day activities are the main source of information about job opportunities.	SA	A	N	D	SD
53. Most counselors can provide useful information about job opportunities.	SA	A	N	D	SD

ITEM	RESPONSE CHOICES	ANSWER COLUMN	
54. In answering the questions of the preceding section, you were asked to give your own attitudes about vocational education. Which of the courses listed do you classify as vocational? (Circle numbers which correspond to all responses which you would include within the area of vocational education.)	Woodshop	1	58-65
	Home Economics	2	
	Biology	3	
	Bookkeeping	4	
	Mathematics	5	
	Distributive Education	6	
	Beginning Typing	7	
	Shorthand	8	
55. In which of the school districts is your school located?	Bellevue	1	66
	Edmonds	2	
	Mercer Island	3	
	Northshore	4	
	Renton	5	
	Snoqualmie Valley	6	
56. Circle the answer corresponding to the response which best describes the extent to which your present and projected high school program includes vocational courses.	A great deal	1	67
	[illegible]ate extent	2	
	Very little	3	
57. Do you plan to go to college immediately after high school graduation?	Yes	1	68
	No	2	
	Undecided	3	
58. To what extent have you determined a career choice for your adult life?	Undecided	1	69
	Tentative choice	2	
	Definite choice	3	
59. In which of the three occupational categories listed will we experience the greatest manpower need during the next five years? (It is appropriate to guess on this question.)	Stenographers	1	70
	Medical technicians	2	
	Chemists	3	

2

ITEM	RESPONSE CHOICES	ANSWER COLUMN	
60. Please rate the extent to which the total curriculum of your school meets your own felt educational needs.	Not at all	1	71
	To a moderate extent	2	
	Rather well	3	
	Very well	4	
61. From which of the following are you most likely to seek information about career choice and/or future educational plans? (Circle up to three as listed in the response column.)	Career Day programs	1	72-74
	Teachers	2	
	Printed materials	3	
	Parents	4	
	Counselors	5	
	Fellow students	6	
	Other adults	7	
	College conferences and visitations	8	
	Other (specify:________ __________________)	9	
62. Have you ever worked at a job for pay?	Yes	1	75
	No	2	
63. If your answer to #66 is "yes," was this job (or any of these jobs) related to a career choice?	Yes	1	76
	No	2	
	Possibly	3	

ITEM	RESPONSE CHOICES	ANSWER COLUMN	
64. Which of the following would make a significant improvement in the vocational education programs in your school? (Limit your choices to four of the eleven possible responses.)	Teach more speaking skills	1	77•80
	Emphasize more organizational skills	2	
	Teach more job skills	3	
	Provide greater variety in program's curriculum	4	
	Teach more math skills	5	
	Use more resource persons from occupational fields	6	
	Teach more writing skills	7	
	Teach more personal relations skills	8	
	Teach more reading skills	9	
	Provide more related "on the job" experience	10	
	Other (specify: ________ ________________________)	11	

CHAPTER 5

VOCATIONAL PROGRAMS AND THEIR ENROLLMENTS

Much of the original study model as developed by the SCR-23 Steering Committee related to an inventory of enrollments in the various delivery systems involved in vocational education. While much of the enrollment and program data planned for presentation in this report was simply not available (e.g., the disadvantaged and handicapped enrollments by program and the unfilled student seats in the common schools, the ethnic breakdowns by program in the common schools, vocational-technical institutes, and community colleges, and the types of devices used to evaluate program effectiveness of supplementary vocational programs in all schools), the sections which follow outline the general extent and rate of growth of programs throughout the State. An effort has been made to summarize the geographical distribution of enrollments in various vocational programs; and, because of problems with duplicated counts, enrollments in programs supported by the Manpower Development and Training Act (MDTA) have not been included as separate tables.

Before proceeding with the actual presentation of enrollment data, two special concerns or cautions must be emphasized. First of all, much of the data (and particularly the parts relating to program distribution by geographical area) are based solely upon the 1970-71 figures reported to TRIAD by the various delivery systems.[1] The data for 1971-72 as originally specified by the SCR-23 Study Model have only recently become available and therefore have not been entered into the TRIAD system at the University of Washington at this time. While statewide vocational enrollment trends in general program categories can be examined for the most recent two-year period, we have no way of updating the enrollment data for smaller geographical areas or for special programs until channeled through the TRIAD system.

A second caution relative to the enrollment data as presented here stems from the occasional problem of receiving different figures from various data sources. These differences are sometimes a result of different methods of counting student enrollments (e.g., full-time equivalent students versus total students enrolled or duplicated versus non-duplicated counts) or they may be the result of faulty data on file in the various originating institutions or agencies. Time permitted only a limited check of data sources and in most cases the data presented in this chapter were taken directly from enrollment figures presented by the various delivery systems or summarized by the TRIAD group. In every case, the data source has been indicated on the appropriate tables and charts; and, in those instances where comparison is made over a period of time, the same data source has been used for all figures. This latter procedure should assure a reasonable comparison or trend analysis.

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[1] TRIAD is a group headed by Dr. William Schill, University of Washington, which was retained by the Coordinating Council for Occupational Education to receive, analyze and display data. The analysis, as provided by this group, forms a substantial part of the presentation of enrollments in this chapter.

Recent Trends in Vocational Enrollments

In looking at the most recent enrollment data presented in Table 5.1a, we note that vocational enrollments in the various public delivery systems have increased 11.6 percent over the past year. Increases have been experienced in all of the major delivery systems; however, in looking at Table 5.1a, it should be noted that the enrollment for Olympia Vocational Technical Institute (OVTI) was placed in the vocational technical category for both years despite the fact that OVTI has, since June 1971, been administered by the community college system.

The community college enrollments as listed in Table 5.1a include preparatory, supplementary (Adult), and apprentice programs. Of the 85,978 students enrollments reported for 1971-72, approximately 70 percent were enrolled in supplementary training programs. An additional 27 percent were in preparatory programs and approximately 3 percent were in recognized occupational apprentice programs. While certain of the enrollments in each of these programs are supported by the Manpower Development and Training Act of 1962, difficulties in obtaining reliable data have prevented a separate presentation of these figures as part of SCR-23.

TABLE 5.1a

VOCATIONAL ENROLLMENT SUMMARY FOR WASHINGTON STATE[a]

Type of Institution[b]	School Year		Percent Change
	1970-71	1971-72	
Common Schools	116,542	132,801	+14.0
Vocational-Technical Institutes[c]	36,272	39,057	+ 7.7
Community Colleges	78,165	85,978	+10.0
Total[d]	230,979	257,836	+11.6

[a] The vocational enrollments as recorded here are limited to those for which funding from state and/or federal government sources is provided. All data was obtained from CCOE and SBCCE.

[b] Because of the non-availability of reliable data, enrollments in non-public institutions have been omitted.

[c] For the sake of comparison, the vocational enrollments for Olympia Vocational Technical Institute (OVTI) totalling 3,500 have been included in the Vocational Technical Institute count, although, since June, 1971, OVTI has actually been administered through the community college system.

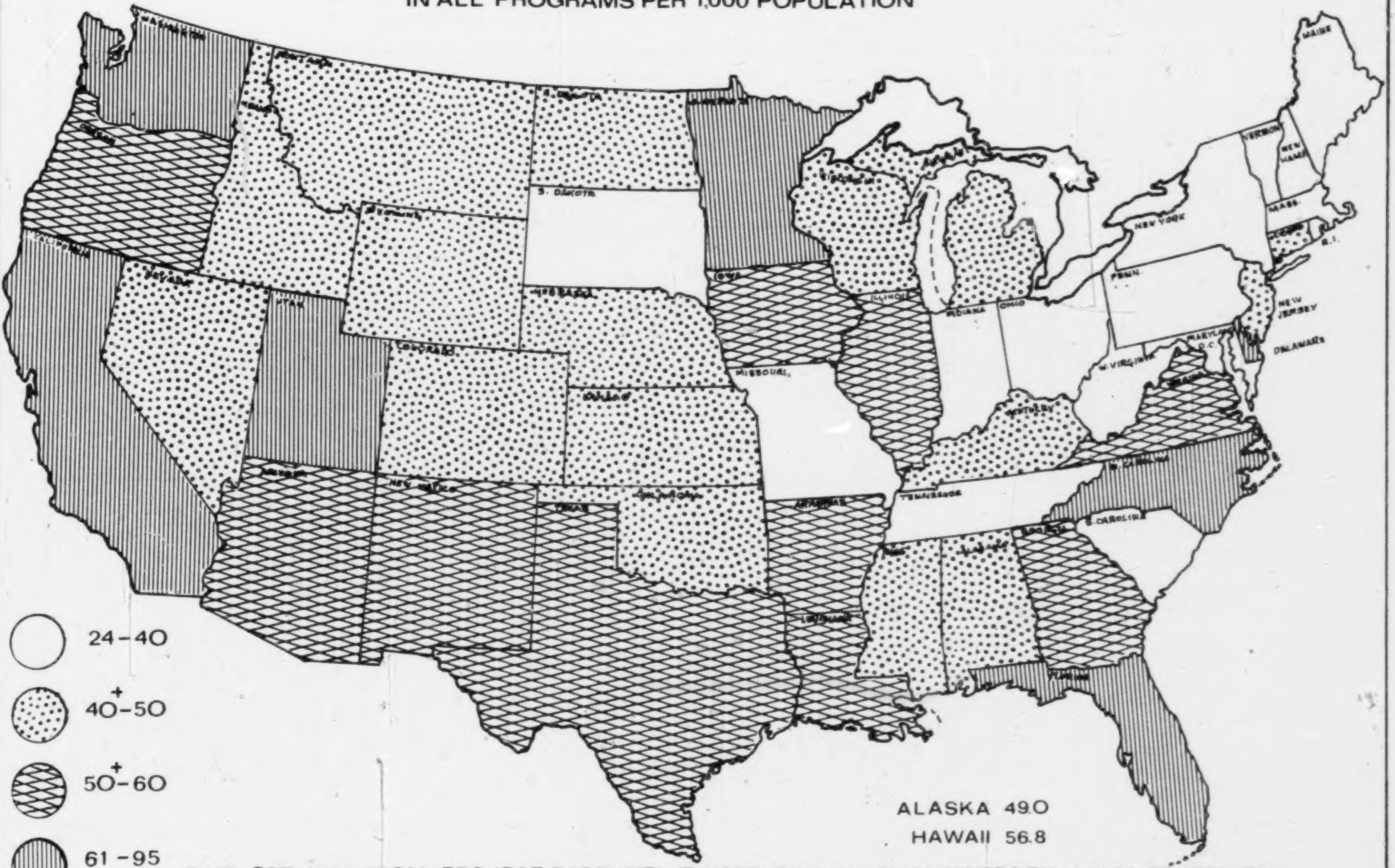
[d] The enrollment summaries represent headcounts as reported on Federal Form 3138. The Full Time Enrollment (FTE) count for each institution may vary substantially from these figures. For example, the vocational FTE count in the community college system for 1970-71 was 21,685 or 34.5 percent of the total FTE enrollment.

While it is true that the 1970-71 student enrollment of 230,979 includes some double counting of students, particularly at the common school level, this total enrollment figure compares very favorably with enrollments in other states. In Map 5.1a, we see that the total vocational education, Manpower, and Apprenticeship enrollment per 1,000 population in the State of Washington is among the highest for the nation. According to figures compiled by "Project Baseline" (a national vocational enrollment study currently in progress), Washington has 70.7 persons per 1,000 population involved in its various vocational programs compared with a national average of only 48.0. While certain problems in data collection and the reliability of data sources can make comparisons of this type somewhat questionable, the overall picture as presented for the State of Washington by "Project Baseline" appears favorable, at least with reference to the percent of the total populations served by various vocational programs.

It might be well also to examine the distribution of vocational enrollments across the various public delivery systems. In Table 5.1a, we see that approximately 50 percent of all public vocational enrollments are at the common school level. Since these common school figures include approximately 4,861 enrollments in vocational programs in grades K-8, the percentage of total enrollment in secondary schools is slightly below 50 percent, particularly when all Manpower and Apprentice programs are added to the totals of Table 5.1a. In Table 5.1b we observe a comparison of the total in secondary vocational enrollments for the 50 states and note that, according to "Project Baseline," Washington has 49.4 percent of its vocational enrollments at the secondary level as compared with a national average of 56.2 percent. The discrepancy of approximately five thousand between the 1970-71 enrollments of Table 5.1a and Table 5.1b is due to the fact that Table 5.1b includes enrollments for grades 9-12 only, whereas Table 5.1a includes under the common school category all vocational programs in grades K-12.

MAP 5.1a

COMPARISON OF STATES BY TOTAL ENROLLMENT IN ALL PROGRAMS PER 1,000 POPULATION


WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
N. DAKOTA
S. DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
MICHIGAN
ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
S. CAROLINA
N. CAROLINA
VIRGINIA
W. VIRGINIA
MARYLAND
D.C.
DELAWARE
NEW JERSEY
PENN.
NEW YORK
VERMONT
NEW HAMP.
MASS.
CONN.
R.I.
MAINE
24-40
40+-50
50+-60
61-95

ALASKA 49.0
HAWAII 56.8

DATA OBTAINED FROM "PROJECT BASELINE" AT NORTHERN ARIZONA UNIVERSITY. A FULL REPORT ON NATIONAL COMPARISONS IS TO BE PUBLISHED IN NOVEMBER, 1972.

TABLE 5.1b

VOCATIONAL ENROLLMENT IN SECONDARY SCHOOLS

1970-71[a]

State	Vocational Education Enrollment[b]		Secondary Enrollment as Percent of Total
	Secondary Schools	All Schools	
Alabama	89,061	147,220	60.5
Alaska	8,494	13,147	64.6
Arizona	50,310	88,471	56.9
Arkansas	53,996	103,907	52.1
California	540,474	1,204,611	44.9
Colorado	45,998	95,309	48.3
Connecticut	78,191	113,694	68.7
Delaware	27,439	31,211	87.9
District of Columbia	5,681	11,008	51.6
Florida	201,016	438,087	45.9
Georgia	157,829	255,887	61.7
Hawaii	23,040	38,692	59.5
Idaho	21,844	30,370	72.0
Illinois	432,217	541,178	79.9
Indiana	86,479	131,338	65.8
Iowa	50,211	127,911	39.3
Kansas	38,468	93,151	41.3
Kentucky	87,872	145,324	60.5
Louisiana	126,251	174,373	72.4
Maine	16,458	23,424	70.3

(Continued)

TABLE 5.1b

VOCATIONAL ENROLLMENT IN SECONDARY SCHOOLS

1970-71[a]

State	Vocational Education Enrollment[b]		Secondary Enrollment as Percent of Total
	Secondary Schools	All Schools	
Maryland	100,668	141,774	71.0
Massachusetts	95,411	121,950	78.2
Michigan	164,234	320,055	51.3
Minnesota	104,837	219,085	47.9
Mississippi	54,729	101,768	53.8
Missouri	98,547	143,632	68.6
Montana	16,707	27,328	61.1
Nebraska	32,568	59,550	54.7
Nevada	12,596	18,110	69.6
New Hampshire	18,378	23,082	79.6
New Jersey	181,476	292,516	62.0
New Mexico	35,305	49,178	71.8
New York	445,606	669,717	66.5
North Carolina	161,697	376,817	42.9
North Dakota	16,470	26,215	62.8
Ohio	181,937	389,044	46.8
Oklahoma	60,856	104,223	58.4
Oregon	55,022	101,090	54.4
Pennsylvania	184,619	337,835	54.6
Rhode Island	12,026	18,370	65.5

(Continued)

TABLE 5.1b

VOCATIONAL ENROLLMENT IN SECONDARY SCHOOLS

1970-71[a]

State	Vocational Education Enrollment[b]		Secondary Enrollment as Percent of Total
	Secondary Schools	All Schools	
South Carolina	70,655	93,616	75.5
South Dakota	14,331	21,413	66.9
Tennessee	70,717	118,817	59.5
Texas	306,570	577,695	53.1
Utah	65,131	94,983	68.6
Vermont	9,601	12,593	76.2
Virginia	129,770	243,000	53.4
Washington	111,681	226,118	49.4
West Virginia	33,161	59,199	56.0
Wisconsin	57,017	187,637	30.4
Wyoming	11,851	14,249	83.2
Guam	430	2,817	15.3
Puerto Rico	65,032	109,809	59.2
Virgin Islands	1,744	1,769	98.6
Am. Samoa	1,095	1,702	64.3
Pac. Trust Terr.	2,683	2,914	92.1
TOTAL	5,126,487	9,117,983	56.2

[a] Data obtained from "Project Baseline", Northern Arizona University. Original source was the Federal Reporting Form #3138 which each state submits to the U.S. Office of Education.

[b] Enrollments are exclusive of Manpower and Apprentice programs.

Turning to recent trends in vocational enrollments by program area, we see in Table 5.1c that all programs with the exception of Agriculture, Health, Homemaking, and Technical have experienced enrollment increases over the past two years. Distributive Education has increased by almost 50 percent and the category of Other Programs (including a large number of pre-vocational programs at the secondary level) has more than doubled.

While a similar trend analysis by program is not available for the other 49 states, we observe in Table 5.1d and its associated Chart 5.1a the varying percentage of enrollments in different program areas for both Washington and the entire United States. We note from Chart 5.1a that Washington's percentage of enrollments in both Homemaking and Business & Office exceeds the national average by approximately five percent. In all other program areas, the enrollments are reasonably comparable; however, the fact that the United States figures assign 10 percent of all enrollments to the "Other" category makes it extremely difficult to draw any firm conclusions. The differences as presented do not seem so great as to present any real concern at this time.

In summary, Washington has over the past two years experienced an overall increase of 11.6 percent in its vocational enrollments. The percentage of the total population benefiting from vocational programs in the State of Washington is considerably higher than for the nation as a whole. The distribution of vocational enrollments over the various occupational areas in Washington State is reasonably compatible with the national distributions as published by the U.S. Office of Education. While recent declines in enrollment in the Health area are reason for some concern, most enrollment changes in the broad program areas are reasonable in light of the occupational requirements of our State.

Program Availability in Various Delivery Systems

One of the questions often raised about vocational education in the State of Washington relates to the availability of programs in various

TABLE 5.1c

VOCATIONAL ENROLLMENTS BY PROGRAM IN WASHINGTON STATE[a]

Occupational Programs[b]	School Year		Percent Change
	1970-71	1971-72	
Agriculture (01)	16,080	15,680	- 2.5
Distributive Education (04)	11,039	16,713	+51.4
Health (07)	7,672	6,957	- 9.3
Homemaking (09)	78,809	78,786	- .03
Business and Office (14)	55,971	62,081	+11.0
Technical (16)	10,602	9,123	-14.0
Trades and Industry (17)	45,743	55,663	+21.7
Other (99)	5,063	12,833	+153.5
Total	230,979	257,836	+11.6

[a] Data obtained from CCOE and SBCCE.

[b] The numbers in parentheses represent the O.E. Code Number coinciding with the occupational program of reference. These same numbers are used in defining program classification in subsequent tables.

TABLE 5.1d

VOCATIONAL ENROLLMENTS - WASHINGTON STATE AND UNITED STATES[a]

1970-71

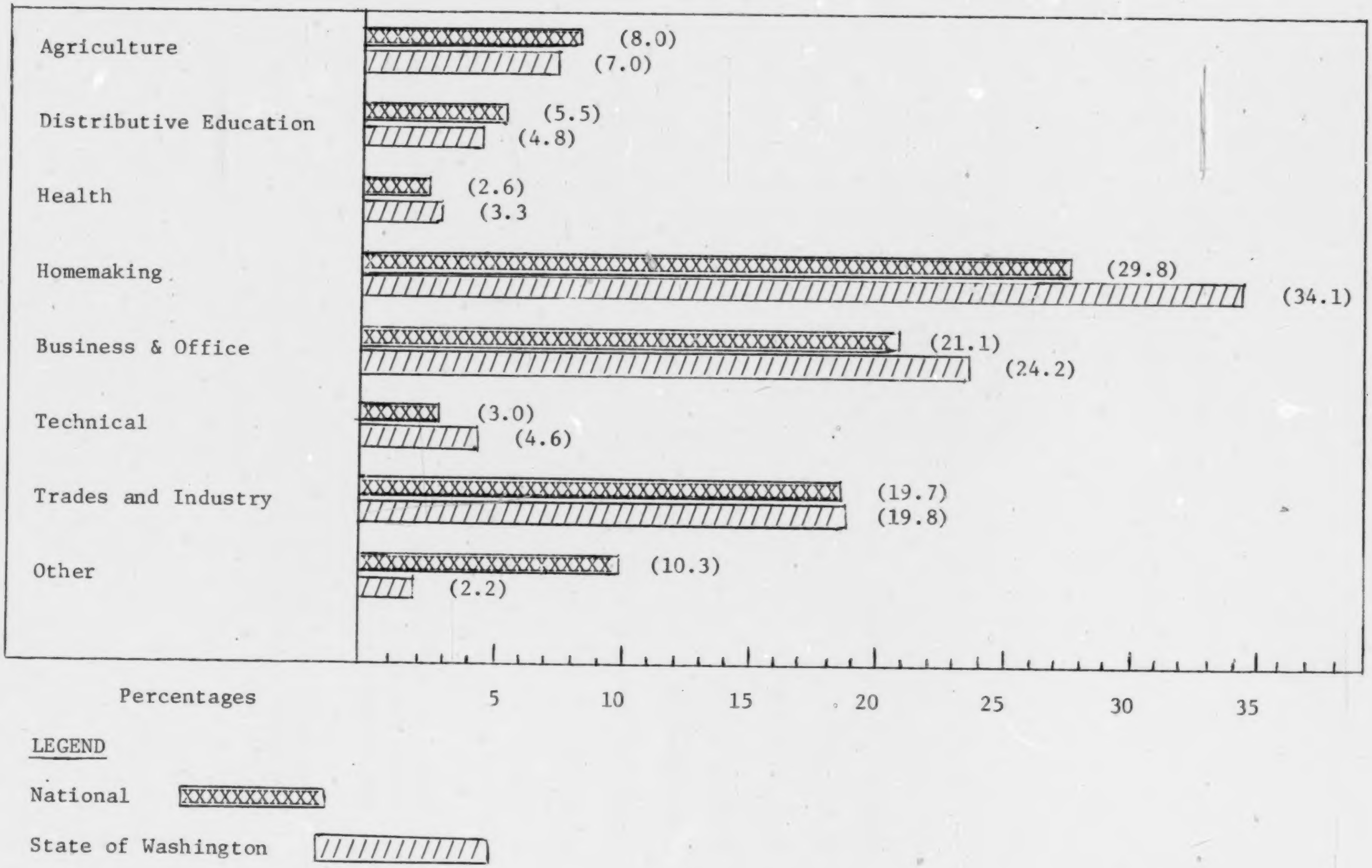
Occupational Programs	Washington		United States	
	Total	Percent	Total	Percent
Agriculture (01)	16,080	7.0	845,085	8.0
Distributive Education (04)	11,039	4.8	578,075	5.5
Health (07)	7,672	3.3	269,546	2.6
Homemaking (09)	78,809	34.1	3,129,804	29.8
Business and Office (14)	55,971	24.2	2,226,854	21.1
Technical (16)	10,602	4.6	313,860	3.0
Trades and Industry (17)	45,743	19.8	2,075,166	19.7
Other (99)	5,063	2.2	1,087,270	10.3
Total	230,979	100.0	10,525,660[b]	100.0

[a] Data for the United States was obtained from "Fact Sheet-Vocational Education Statistics", Fiscal Years 1970-72 Form HFD 7-14-72, OE/VTE San Francisco.

[b] This total may include some duplications, and, therefore, differs from the total cited in the document in "Footnote a" which claims to be an unduplicated count.

CHART 5.1a

PERCENTAGE OF VOCATIONAL ENROLLMENT BY PROGRAM IN UNITED STATES AND WASHINGTON STATE--1970-71



sections of the State. We see in Table 5.2a a tabulation of the number of Washington's 323 School Districts offering programs in the general occupational areas. While efforts are being made to expand certain of the program offerings across the State, limited enrollments in the various school districts have presented a major barrier to such expansion. Maps showing the program availability pattern in common school districts throughout the State are included in Appendix 5A of this report. As might be expected, program availability is quite limited in some of the central and eastern portions of our State.

In looking at program availability on the postsecondary level, we observe in Table 5.2b the number of institutions offering programs in the various occupational areas. Since all vocational-technical institutes are located in the western part of the State, the area distribution as presented in Appendix 5A for the public secondary schools is not presented for this level.

A detailed listing of program availability on the community college level is included in Appendix 5B of this report. A similar listing for vocational-technical programs can be found in Appendix 5C. Since community colleges are in commuting distance of approximately 90 percent of our State's population, the opportunities for vocational training at that level appear to be reasonably distributed over the State.[1]

Geographical Distribution of Vocational Enrollment

Having examined the availability of programs in various sections of the State, it might be of interest at this point to compare the actual enrollments in vocational programs. Making such a comparison requires the selection of a geographical area and some population base against which to compute the vocational enrollment percents. In Table 5.3a, the county is used as a geographical base for

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[1] According to Mr. Richard Moe of the State Board for Community College Education, over 90 percent of residents in Washington live within commuting distance of the comprehensive program of some community college.

TABLE 5.2a

NUMBER OF PUBLIC SCHOOL DISTRICTS
OFFERING SPECIFIC VOCATIONAL PROGRAMS

1970-71

Occupational Programs	Number of Districts Offering Program
Agriculture (01)	125
Distributive Education (04)	52
Health (07)	16
Homemaking (0901)	196
Gainful Home Economics (0902)	21
Business and Office (14)	177
Technical (16)	2
Trades and Industry (17)	63

[a] Data was obtained from TRIAD, University of Washington.

TABLE 5.2b

NUMBER OF POSTSECONDARY INSTITUTIONS OFFERING SPECIFIC VOCATIONAL PROGRAMS[a]

1971-72

Occupational Programs	Number of Voc-Tech Institutes Offering Programs	Number of Community Colleges Offering Programs
Agriculture (01)	2	19
Distributive Education (04)	5	19
Health (07)	3	22
Homemaking (0901)	5	6
Gainful Home Economics (0902)	5	5
Business & Office (14)	5	22
Trades & Industry	5	21
Other	5	22

[a] Data obtained from CCOE and SBCCE.

TABLE 5.3a

VOCATIONAL ENROLLMENT, RESIDENT WORK FORCE, AND POPULATION BY COUNTY

1970-71

County	Vocational Enrollment as Percent of Resident Work Force[b]			Vocational Enrollment as Percent of Total Population[b]		
	Enrollment	Work Force	Percent	Enrollment	Population	Percent
Adams	649	4,701	13.8	649	12,014	5.4
Asotin	790	4,732	16.7	790	13,799	5.7
Benton	2,371	25,320	9.4	2,371	67,540	3.5
Chelan	2,065	15,348	13.5	2.065	41,355	5.0
Clallam	1,655	11,633	14.2	1,655	34,770	4.8
Clark	6,282	47,149	13.3	6,282	128,454	4.9
Columbia	167	1,681	9.9	167	4,439	3.8
Cowlitz	3,640	24,118	15.1	3,640	68,616	5.3
Douglas	740	6,349	11.7	740	16,787	4.4
Ferry	79	1,240	6.4	79	3,655	2.2
Franklin	1,761	9,936	17.7	1,761	25,816	6.8
Garfield	195	982	19.9	195	2,911	6.7
Grant	2,401	15,558	15.4	2,401	41,881	5.7
Grays Harbor	2,266	20,590	11.0	2,266	59,553	3.8
Island	501	6,411	7.8	501	27,011	1.9
Jefferson	298	3,638	8.2	298	10,661	2.8
King	43,228	461,615	9.4	43,228	1,156,633	3.7
Kitsap	3,764	33,916	11.1	3,764	101,732	3.7
Kittitas	597	8,904	6.7	597	25,039	2.4
Klickitat	522	4,291	12.2	522	12,138	4.3
Lewis	3,304	15,248	21.7	3,304	45,467	7.3

(Continued)

TABLE 5.3a

VOCATIONAL ENROLLMENT, RESIDENT WORK FORCE, AND POPULATION BY COUNTY

1970-71

County	Vocational Enrollment as Percent of Resident Work Force			Vocational Enrollment as Percent of Total Population		
	Enrollment	Work Force	Percent	Enrollment	Population	Percent
Lincoln	452	3,567	12.7	452	9,572	4,7
Mason	481	6,640	7.2	481	20,918	2.3
Okanogan	1,731	9,024	19.2	1,731	25,867	6.7
Pacific	605	5,478	11.0	605	15,796	3.8
Pend Oreille	506	1,778	28.5	506	6,025	8.4
Pierce	33,512	124,525	26.9	33,512	411,027	8.2
San Juan	0	1,173	.0	0	3,856	.0
Skagit	3,608	18,095	20.0	3,608	52,381	6.9
Skamania	263	1,843	14.3	263	5,845	4.5
Snohomish	11,672	95,140	12.3	11,672	265,236	4.4
Spokane	11,716	99,891	11.7	11,716	287,487	4.1
Stevens	1,558	5,121	30.4	1,558	17,405	9.0
Thurston	5,615	28,693	19.6	5,615	76,894	7.3
Wahkiakum	159	1,191	13.4	159	3,592	4.4
Walla Walla	1,859	15,742	11.8	1,859	42,176	4.4
Whatcom	5,168	28,488	18.2	5,168	81,950	6.3
Whitman	992	13,778	7.2	992	37,900	2.6
Yakima	6,127	49,536	12.4	6,127	144,971	4.2
Total[a]	163,299	1,233,063	13.2	163,299	3,409,169	4.8

[a] Leaves out supplementary programs in community colleges. Abstracted from TRIAD data.

[b] Work force and population data obtained from the 1970 U.S. Census.

comparison and two separate populations--resident work force and total population--have been used for computations. The first of these percentages (vocational enrollment/resident work force) is summarized in Map 5.3a and shows the vocational enrollment pattern to be quite varied across the State.

Vocational Enrollments in Non-Public Institutions

Despite efforts made by the SCR-23 Study Staff to obtain enrollment data for non-public institutions in the State of Washington, very little data were actually made available. According to TRIAD information, the non-public school enrollments for 1970-71 in the State of Washington were approximately 11,500. The distribution of these enrollments in various program areas is summarized in Table 5.4a, and the geographical distribution of the same enrollments is presented in Table 5.4b and its associated Map 5.4a. While the numbers in various programs listed in Table 5.4a are not particularly significant when compared with enrollments in various public institutions across the State, it is interesting that approximately 5 percent of all reported vocational enrollments are in non-public institutions. The distribution of those non-public enrollments across the State (as reflected in Map 5.4a) is slightly scattered, with several counties in eastern Washington reporting little or no non-public vocational enrollments.

Special Public Vocational Services

Two public vocational programs merit special attention in any report attempting to summarize vocational enrollments in the State of Washington. The first of these relates to apprenticeship which historically has been a major source of vocational training in Washington State. We note in Table 5.5a that the 195 apprenticeship programs reporting data in 1970-71 had a total of 4,348 job trainees. The distribution of apprentice trainees by county is shown in that same table and ranges from a low of four apprentices in Douglas County to almost 2,000 in King County. While the distribution is generally compatible with the overall population in the various counties it appears that apprenticeship enrollments are somewhat

MAP 5. 3a

PUBLIC VOCATIONAL ENROLLMENT AS PERCENT OF RESIDENT WORK FORCE

1970 - 71

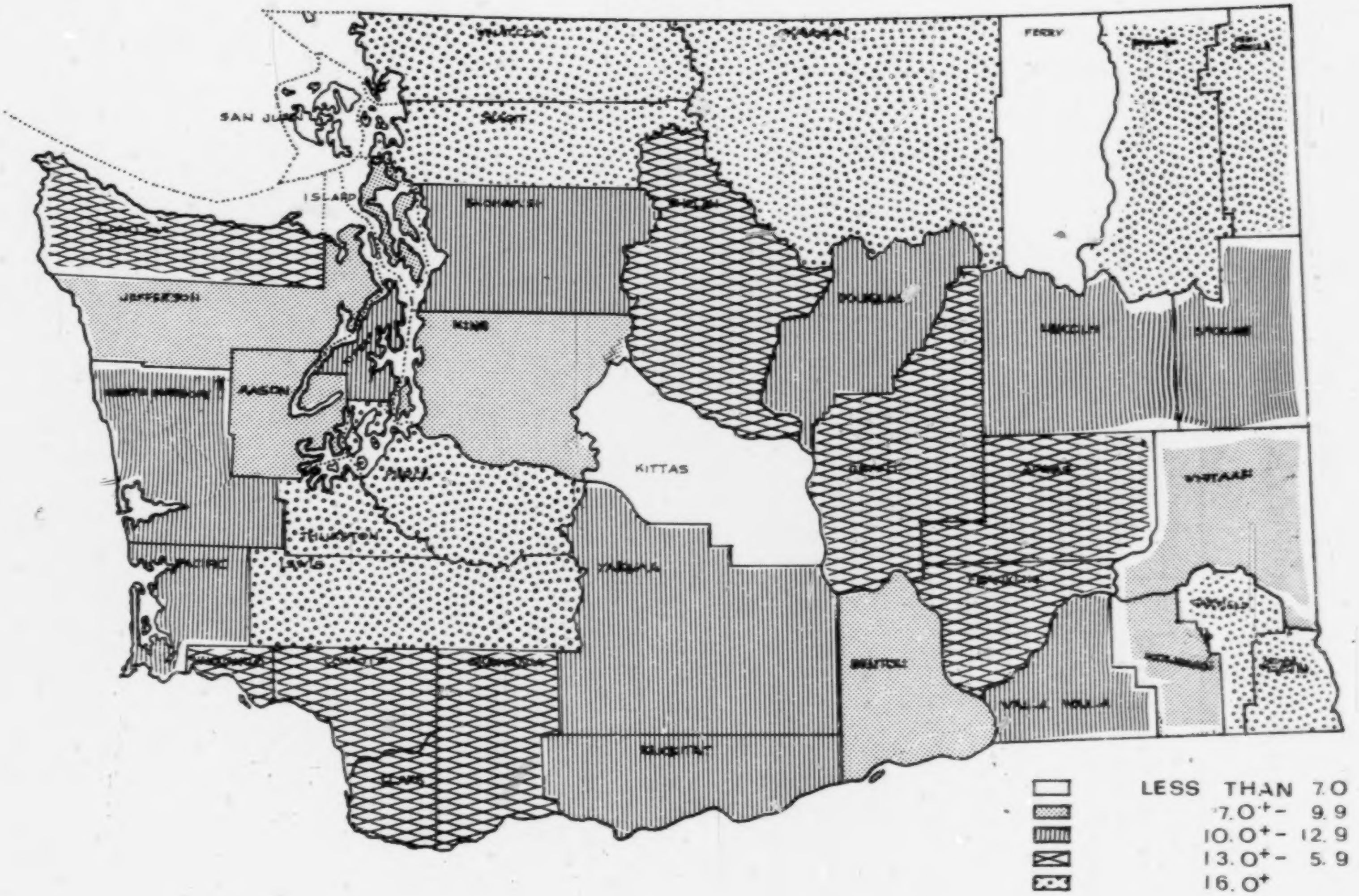

SAN JU
ISLAND
FERRY
SNOHOMISH
JEFFERSON
KING
MASON
KITTAS
DOUGLAS
LINCOLN
SPOKANE
YAKIMA
WHITMAN
BENTON
WALLA WALLA
KLICKITAT
CLARK
LESS THAN 7.0
7.0+ - 9.9
10.0+ - 12.9
13.0+ - 5.9
16.0+

TABLE 5.4a

VOCATIONAL ENROLLMENT IN NON-PUBLIC INSTITUTIONS BY PROGRAM[a]

1970-71

Occupational Area	Enrollment	
	Total	Percent
Barbering	295	2.5
Cosmetology	1,658	14.3
Distributive	1,436	12.4
Medical and Dental	667	5.8
Pilot Training	2,253	19.5
Gainful Home Economics	46	.4
Business and Office	2,820	24.4
Technical	225	1.9
Trade and Industry	1,993	17.3
Other	176	1.5
Total	11,569	100.0

[a] Data obtained from TRIAD, University of Washington

TABLE 5.4b

VOCATIONAL ENROLLMENT IN NON-PUBLIC INSTITUTIONS BY COUNTY[a]

1970-71

Washington State Counties[a]	Number of Institutions	Vocational Enrollment as Percent of Resident Work Force[b]		
		Enrollment	Work Force	Percent
Adams	--	--	4,701	--
Asotin	--	--	4,732	--
Benton	4	162	25,320	.64
Chelan	8	284	15,348	1.85
Clallam	1	20	11,633	.17
Clark	10	288	47,149	.61
Columbia		--	1,681	--
Cowlitz	4	110	24,118	.46
Douglas	--	--	6,349	--
Ferry	--	--	1,240	--
Franklin	6	145	9,936	1.46
Garfield	--	--	982	--
Grant	2	64	15,558	.41
Grays Harbor	2	74	20,590	.36
Island	--	--	6,411	--
Jefferson	--	--	3,638	--
King	93	6,428	461,615	1.39
Kitsap	4	129	33,916	.38
Kittitas	2	40	8,904	.45
Klickitat	1	13	4,291	.30
Lewis	2	39	15,248	.26
Lincoln	--	--	3,567	--
Mason	--	--	6,640	--

(Continued)

TABLE 5.4b

VOCATIONAL ENROLLMENT IN NON-PUBLIC INSTITUTIONS BY COUNTY[a]

1970-71

Washington State Counties	Number of Institutions	Vocational Enrollment as Percent of Resident Work Force		
		Enrollment	Work Force	Percent
Okanogan	--	--	9,024	--
Pacific	--	--	5,478	--
Pend Oreille	--	--	1,778	--
Pierce	22	1,512	124,525	1.21
San Juan	--	--	1,173	--
Skagit	2	67	18,095	.37
Skamania	--	--	1,843	--
Snohomish	12	781	95,140	.82
Spokane	23	624	99,891	.62
Stevens	--	--	5,121	--
Thurston	7	160	28,693	.56
Wahkiakum	--	--	1,191	--
Walla Walla	6	135	15,742	.86
Whatcom	4	177	28,488	.62
Whitman	--	--	13,778	--
Yakima	11	380	49,536	.77
State Total	226	11,632	1,233,063	.94

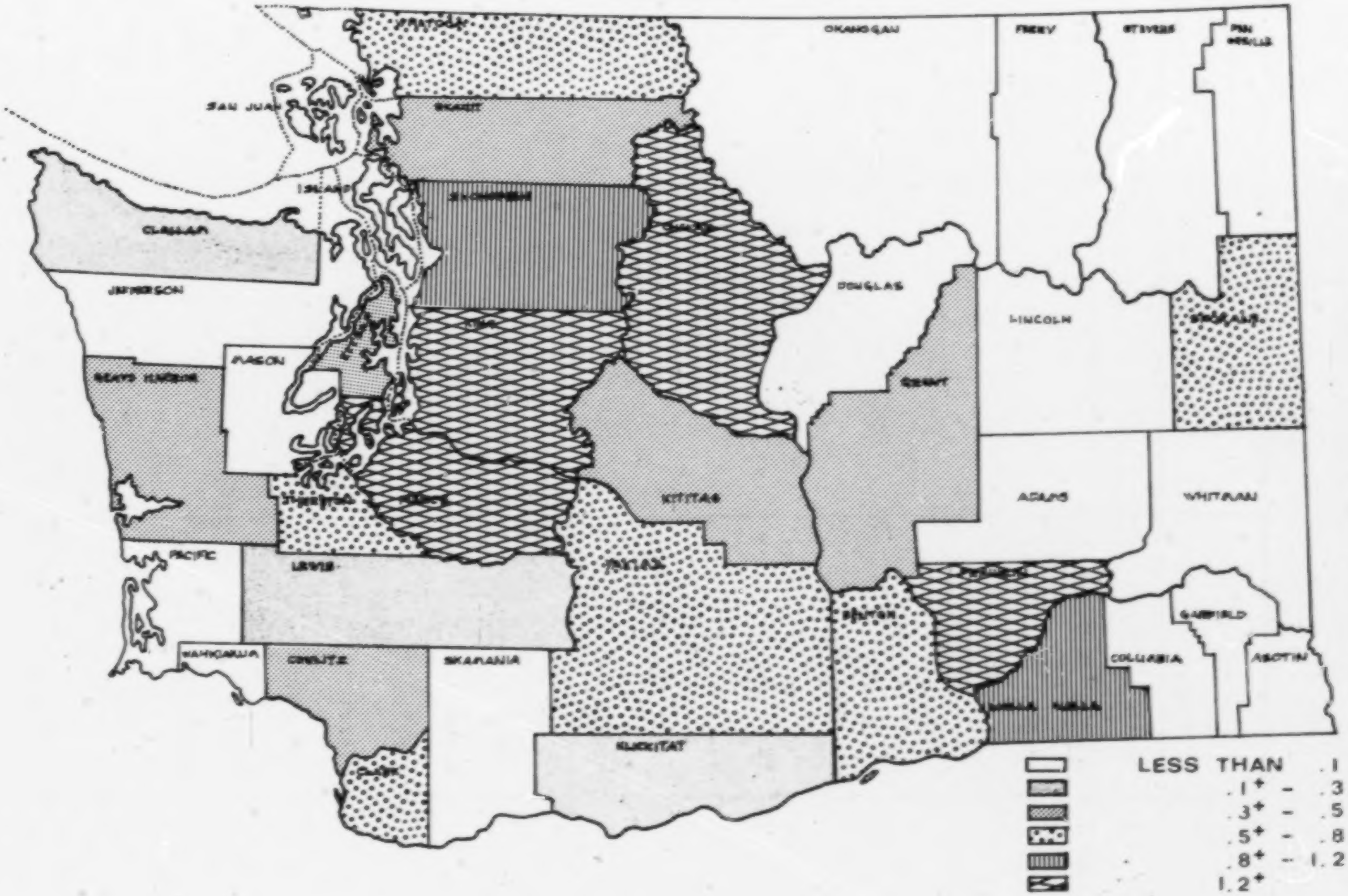
[a] Enrollment figures were obtained from TRIAD, University of Washington.

[b] Work force data obtained from the 1970 U.S. Census.

MAP 5.4a

NON-PUBLIC VOCATIONAL ENROLLMENT AS PERCENT OF RESIDENT WORK FORCE

1970 - 71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BENTON
GARFIELD
WAHKIAKUM
COWLITZ
SKAMANIA
COLUMBIA
ASOTIN
WALLA WALLA
KLICKITAT
CLARK
LESS THAN .1
.1+ - .3
.3+ - .5
.5+ - .8
.8+ - 1.2
1.2+

TABLE 5.5a

APPRENTICE PROGRAMS AND THEIR ENROLLMENTS[a]

1970-71

County	Programs	Number of Apprentices in Apprenticable Trades
Benton	1	17
Chelan	9	82
Clallam	4	14
Clark	3	74
Columbia	6	unknown
Cowlitz	7	61
Douglas	1	4
Franklin	4	91
Grant	3	30
Grays Harbor	9	61
King	46	1,884
Kitsap	4	63
Lewis	2	7
Mason	2	7
Pacific	3	120
Pierce	30	731
San Juan	1	10
Skagit	6	64
Snohomish	14	227
Spokane	16	29[illegible]

TABLE 5.5a

(Continued)

County	Programs	Number of Apprentices in Apprenticable Trades
Thurston	7	92
Walla Walla	2	31
Whatcom	12	173
Whitman	2	41
Yakima	1	165
Total	195	4,348

[a] Data obtained from TRIAD, University of Washington

greater in the urban areas.[1]

Another source of public vocational training worthy of special mention is the Adult Correction Institutions. In Table 5.5b, we summarize the training program enrollments as reported from the TRIAD group. It is estimated that the 126 persons identified here represent approximately 20 percent of all persons discharged and paroled during 1971. A rather extensive examination of vocational programs in Correctional Institutions was carried out by the State Board for Community College Education at the request of the Washington State Department of Social and Health Services and; according to sources in the State Prison system, some progress has already been made in reducing duplication of enrollment in the various correctional institutions.[2]

Programs for Disadvantaged and Handicapped Students

In recent years, considerable public attention has been given to programs for handicapped and disadvantaged persons. Both educational institutions and employing agencies have taken steps in recent years to assist in the job training, placement, and orientation of these two groups. Before proceeding with enrollment figures as made available to the SCR-23 staff, it might be well to examine the definitions for both handicapped and disadvantaged as used by various governmental agencies. These definitions are as follows:

> "HANDICAPPED" - A program for mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled, or other health impaired persons who by reason of their handicapping condition cannot succeed in a regular vocational or consumer and homemaking program designed for persons without such handicaps, and who for that reason require special educational assistance or a modified vocational or consumer and homemaking education program.

---

[1] Apprenticeship enrollments in the urban areas represent approximately 76 percent of the apprentice enrollments in the state. These same urban areas account for only 64 percent of the total population.

[2] On August 8, 1972, a clearinghouse was established in Olympia through the State Board for Community College Education for job related educational and training opportunities for residents of the state correctional institutions thereby facilitating an increase in the number of residents and parolees receiving academic and vocational training appropriate to their needs.

TABLE 5.5b

VOCATIONAL TRAINING IN ADULT CORRECTIONAL INSTITUTIONS[a]

1971

Training Programs	Completions of Discharged and Paroled Persons by Program
Auto Mechanics	11
Barber	14
Body & Fender	20
Building	7
Data Processing	6
Drafting	8
Dry Cleaning	5
Electronics	7
Industrial Arts	0
Keypunch	0
Machine	14
Meat Cutting	10
Office Machine Repair	7
Shoe Repair	10
Welding	1
Other	6
TOTAL	126

[a] Data obtained from TRIAD, University of Washington.

"DISADVANTAGED" - A program for persons who have academic, socio-economic, cultural, or other handicaps that prevent them from succeeding in regular vocational education or consumer and home-making programs designed for persons without such handicaps and who for that reason require specially designed educational programs or related services.

In Table 5.6a, we see a summary of handicapped and disadvantaged enrollments by program in the community colleges for 1971-72. These figures include both preparatory and supplementary programs and the various colleges reporting data presumably utilized the definitions as listed above. The percentage of total enrollees by program in each of these two categories is actually quite similar and in both cases the distribution is fairly consistent with that reported in Table 5.1d for the total vocational enrollment. The somewhat greater percentage of both handicapped and disadvantaged students in Trade and Industry programs is probably attributed to the emphasis on such programs in our urban community colleges.[1]

Because of the way in which data collection is handled, detailed enrollments on the disadvantaged and handicapped students in the public common schools and vocational-technical institutes are not available. In Tables 5.6b and 5.6c, we have summarized special projects for handicapped and disadvantaged students in various common school districts thoughout the State. It should be remembered, however, that the enrollments reported in these two tables represent the specific target population in a vocational training project and do not include the total number of handicapped or disadvantaged students who might be served by regular vocational programs in the respective districts. There is simply no way without implementing major changes in the collection procedure to reliably estimate the actual numbers of handicapped and disadvantaged students receiving various types of vocational training in the common schools.

---

[1] The students identified to be disadvantaged and handicapped tend to be concentrated in our urban areas and therefore, are likely to be over-represented in the urban community colleges. The fact that those same colleges tend to support strong Trade and Industry programs leads to the greater percentage of Trade and Industry enrollments among both groups.

TABLE 5.6a

HANDICAPPED AND DISADVANTAGED VOCATIONAL ENROLLMENTS IN COMMUNITY COLLEGES[a]

1971-72

Occupational Programs	Total Enrollment	Handicapped[d]		Disadvantaged[d]	
		Number	Percent of Total	Number	Percent of Total
Agriculture	3,045	56	2.5	110	2.9
Distributive Education	10,265	211	9.6	264	7.0
Health	4,998	152	6.9	351	9.3
Homemaking	14,089	366	16.6	891	23.4
Business and Office	15,397	491	22.2	579	15.3
Technical	6,855	140	6.3	474	12.5
Trades and Industry	34,829	792	35.9	1,124	29.6
Other[b]	8,839	1,044	--	1,769	--
Total[c]	89,478	2,208	100.0	3,793	100.0

[a] Data obtained from SBCCE.

[b] The "Other" category includes remedial and group guidance classes which are not counted in the total.

[c] The table includes enrollments from Olympia Vocational Technical Institute which, since June, 1971, has been administered by the community college system.

[d] Only those reported receiving assistance under P.L. 90-576, Parts 4A, 4B and 102b. Many handicapped and disadvantaged are in regular programs and not specifically counted.

TABLE 5.6b

1971-72 VOCATIONAL HANDICAPPED PROJECTS[a]

School Districts[b]	Number of Students Served	Funding Level
Centralia	65	$21,135
Everett	60	$23,400
Franklin Pierce	100	$16,500
Renton	34	$ 6,500
Seattle	85	$30,188
Sedro Woolley	13	$12,114
Sedro Woolley	45	$ 4,900
Shoreline	15	$11,900
South Bend	40	$21,695
Yakima	1,747	$ 9,185

[a] Data obtained from SPI.

[b] This table includes projects for which both number of students served and funding level are available.

TABLE 5.6c

1971-72 DISADVANTAGED PROJECTS[a]

School Districts[b]	Number of Students Served	Funding Level
Asotin	60	$15,581.71
Auburn	125	$21,000
Bellevue	294	$ 8,552
Bethel	80	$ 8,500
Chehalis	23	$ 1,680.35
Chelan	10	$ 769
Clarkston	12	$ 4,290
Federal Way	10	$ 2,000
Federal Way	30	$ 8,590
Grandview	121	$ 862
Everett	15	$ 1,508
Issaquah	40	$ 5,350
Kennewick	15	$ 5,330
Kent	63	$ 4,290
Kent	125	$19,930
Mabton	13	$ 850
Nalelle Youth Camp	80	$30,000
Omak	28	$16,500
Peninsula	175	$10,430
Puyallup	30	$ 5,034
Renton	20	$ 9,400
Richland	44	$ 5,792.52
Seattle	1,174	$32,720
Sedro Wooley	18	$ 1,430

(Continued)

TABLE 5.6c

1971-72 DISADVANTAGED PROJECTS

School Districts	Number of Students Served	Funding Level
Sunnyside	124	$ 3.030
Tenino	39	$ 5,428
Toledo	6	$ 1,220
Vashon Island	20	$ 600
White Pass	35	$ 3,783
Yakima	70	$31,000
Yakima	1,416	$ 5,800
Zillah	12	$ 6,325

[a] Data obtained from SPI.

[b] This table includes projects for which both number of students served and funding level are available.

Projected Enrollments in Vocational Education

Projections of any population group are generally best estimates at a particular point in time; and, for this reason, they can be used only as a general guide in future planning. As part of the "State Plan for the Administration of Vocational Education," the Washington State Board of Vocational Education did present a five-year enrollment projection. This projection is summarized in Tables 5.7a and 5.7b. It is generally based upon the mere projection of recent enrollment trends in each of the occupational programs and institutional levels. According to this projection, vocational enrollment can be expected to increase approximately 50 percent in the next five years. At least a part of this increase can be attributed to the continued broadening in the definition of the vocation . program itself; however, the largest increases are likely to occur in various post-secondary programs designed for retraining present workers. Increases in this latter group along with a broadening of the definition of vocational education should more than offset the declining rate of growth in the overall school population.

TABLE 5.7a

PROJECTION OF VOCATIONAL ENROLLMENTS BY PROGRAM[a]

Occupational Programs	Enrollment Projection		
	1971-72	1972-73	1977-78
Agriculture (01)	19,782	24,936	31,434
Distributive Education (04)	11,126	15,087	18,138
Health (07)	8,356	10,517	14,991
Home Economics (09)	77,111	76,693	82,170
Business and Office (14)	60,967	78,096	92,395
Technical (16)	11,024	13,687	18,895
Trade and Industry (17)	39,985	55,856	69,180
Other (99)	3,067	4,623	6,668
Total[b]	231,418	279,495	333,871

[a] Data obtained from State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968, Table IV. Part II - July, 1972.

TABLE 5.7b

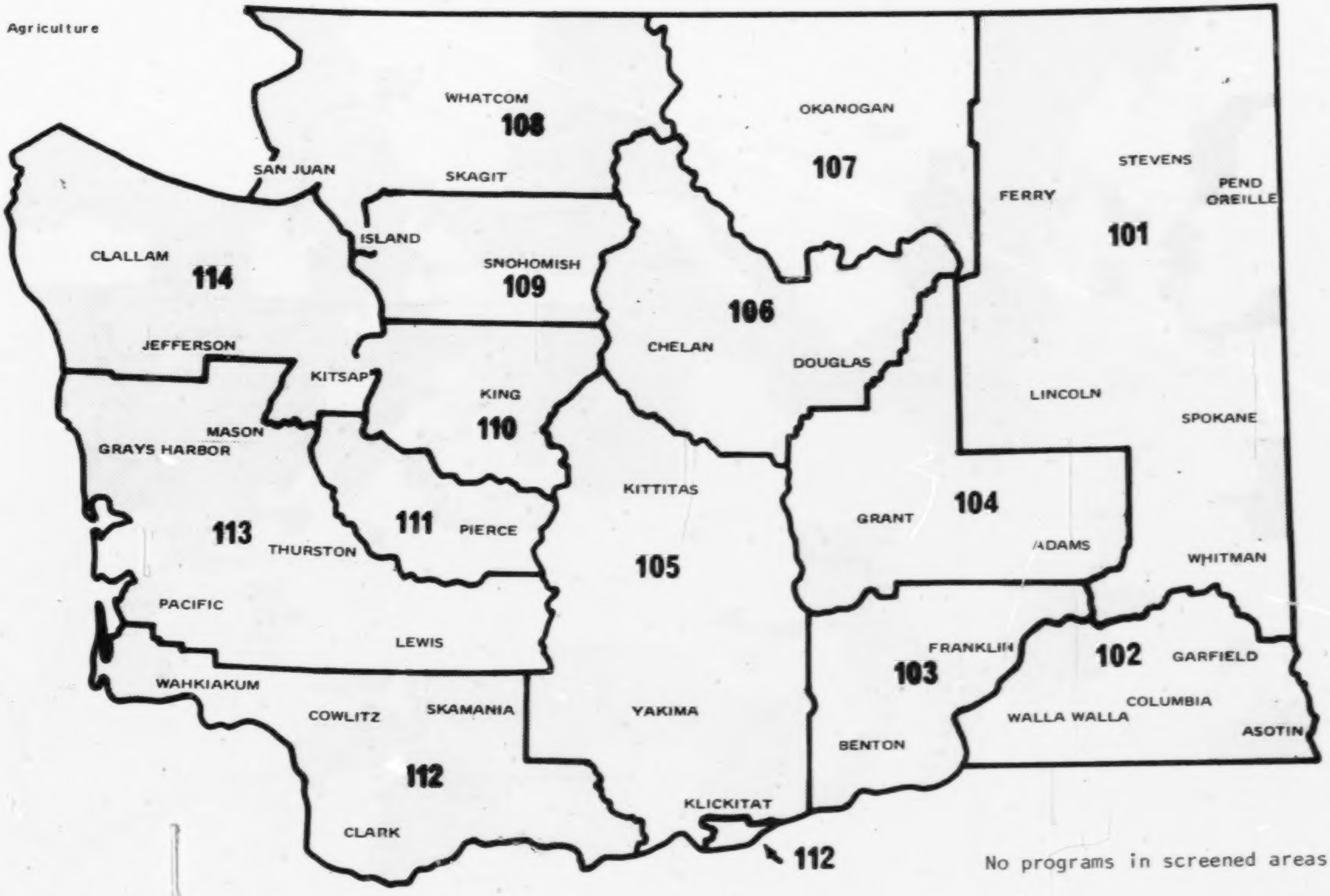
PROJECTION OF VOCATIONAL ENROLLMENTS BY INSTITUTION TYPE[a]

Type of Institution	Enrollment Projection		
	1971-72	1972-73	1977-78
Public Secondary	112,329	132,536	150,181
Public Vocational Technical	36,503	48,957	69,469
Public Community College	82,586	98,002	114,221
Total[b]	231,418	279,495	333,871

[a] Data obtained from State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968; Table IV. - July, 1972.

APPENDIX 5A: AVAILABILITY OF VOCATIONAL PROGRAMS IN WASHINGTON PUBLIC SECONDARY SCHOOLS

Agriculture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KLICKITAT
CLARK
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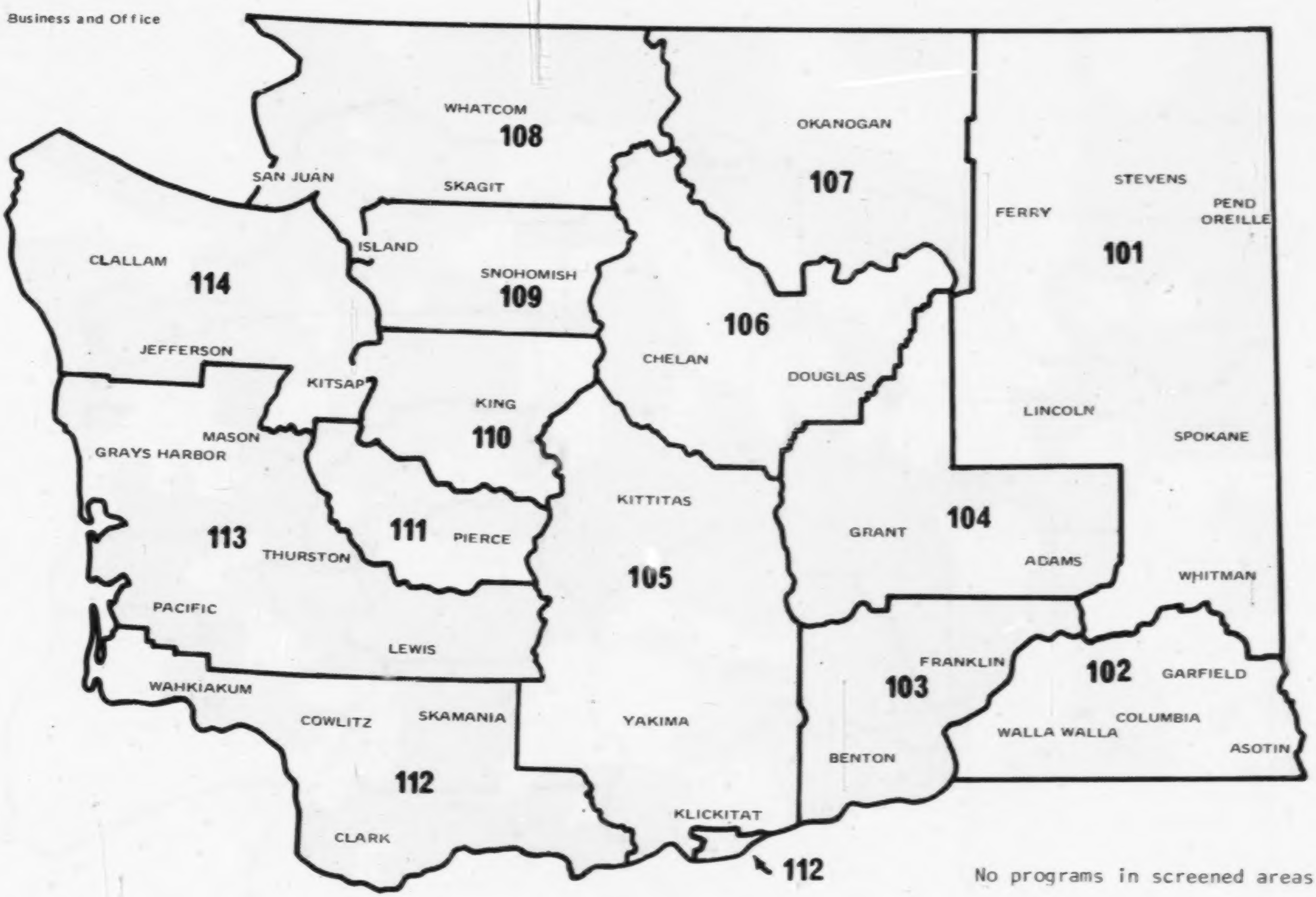
No programs in screened areas

Business and Office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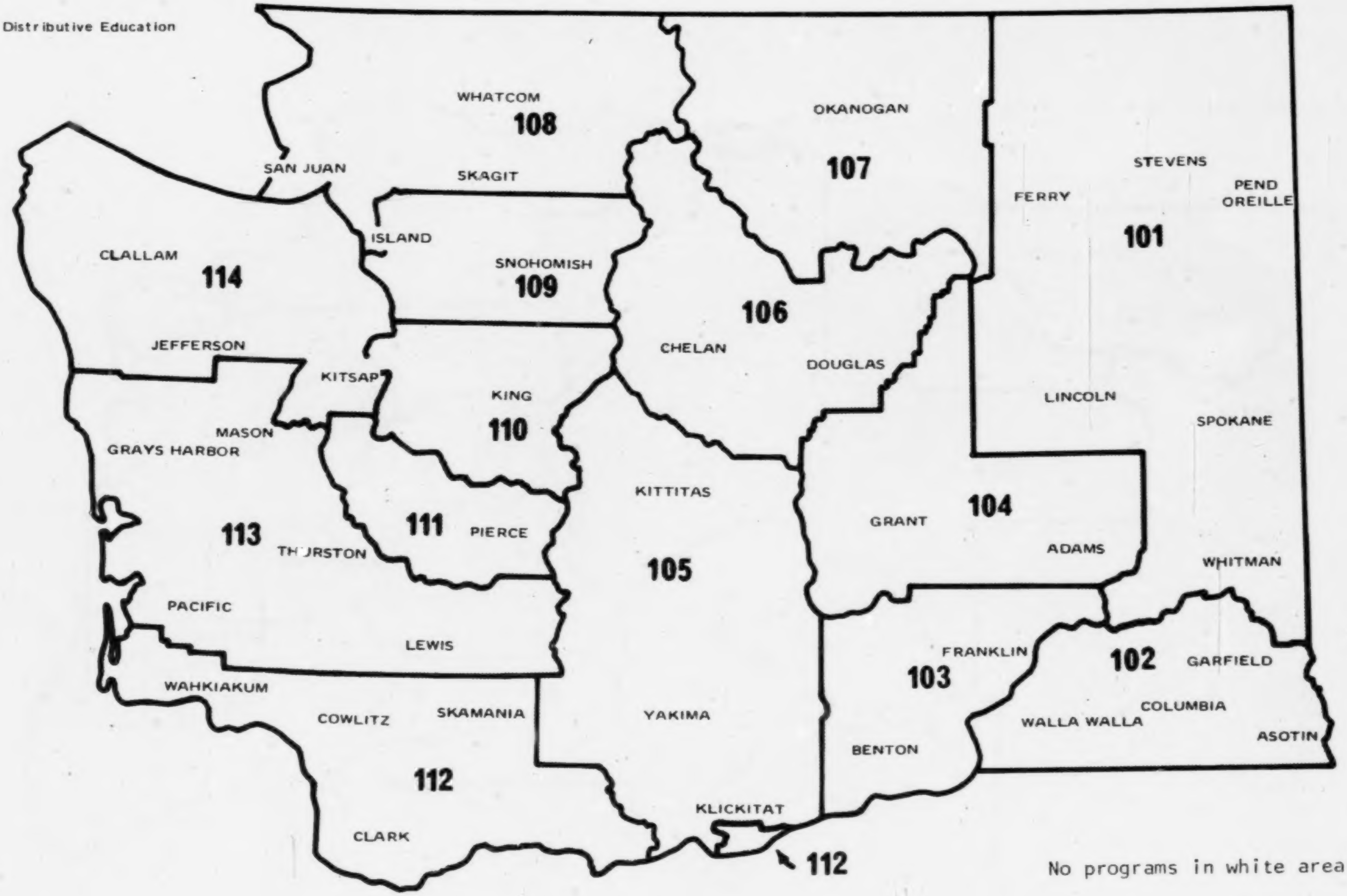
No programs in screened areas

Distributive Education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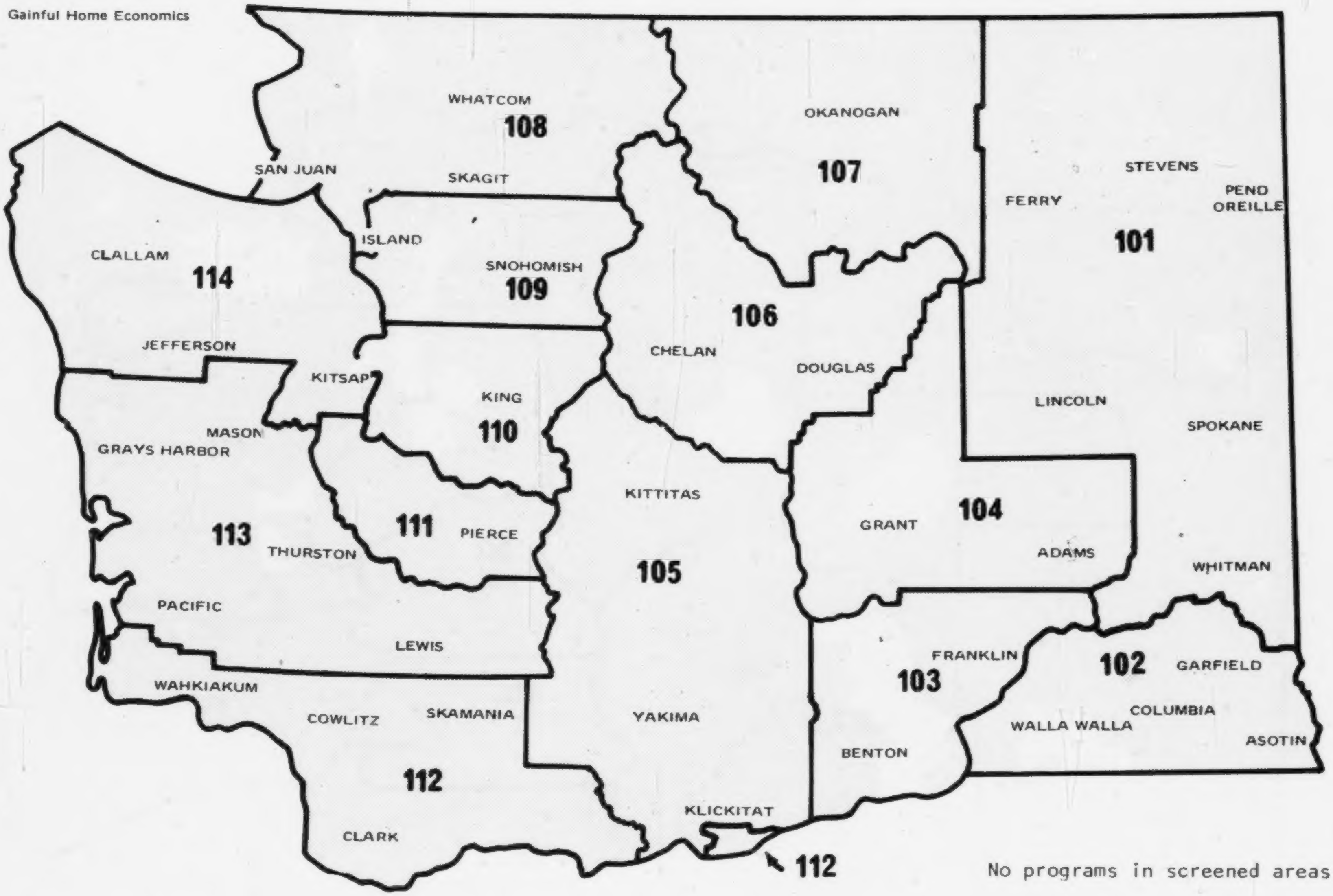
ASOTIN

No programs in white areas

Gainful Home Economics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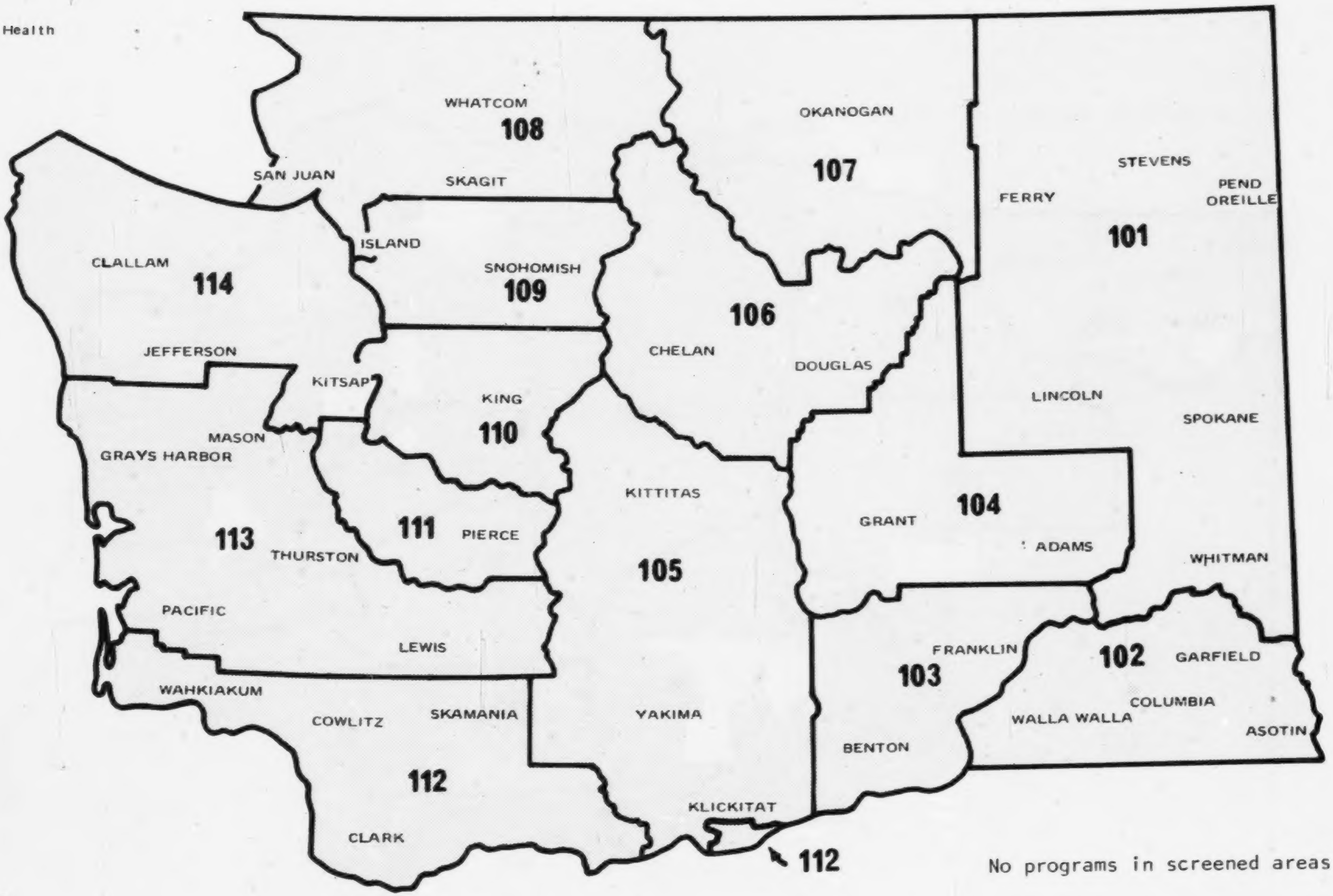
No programs in screened areas

Health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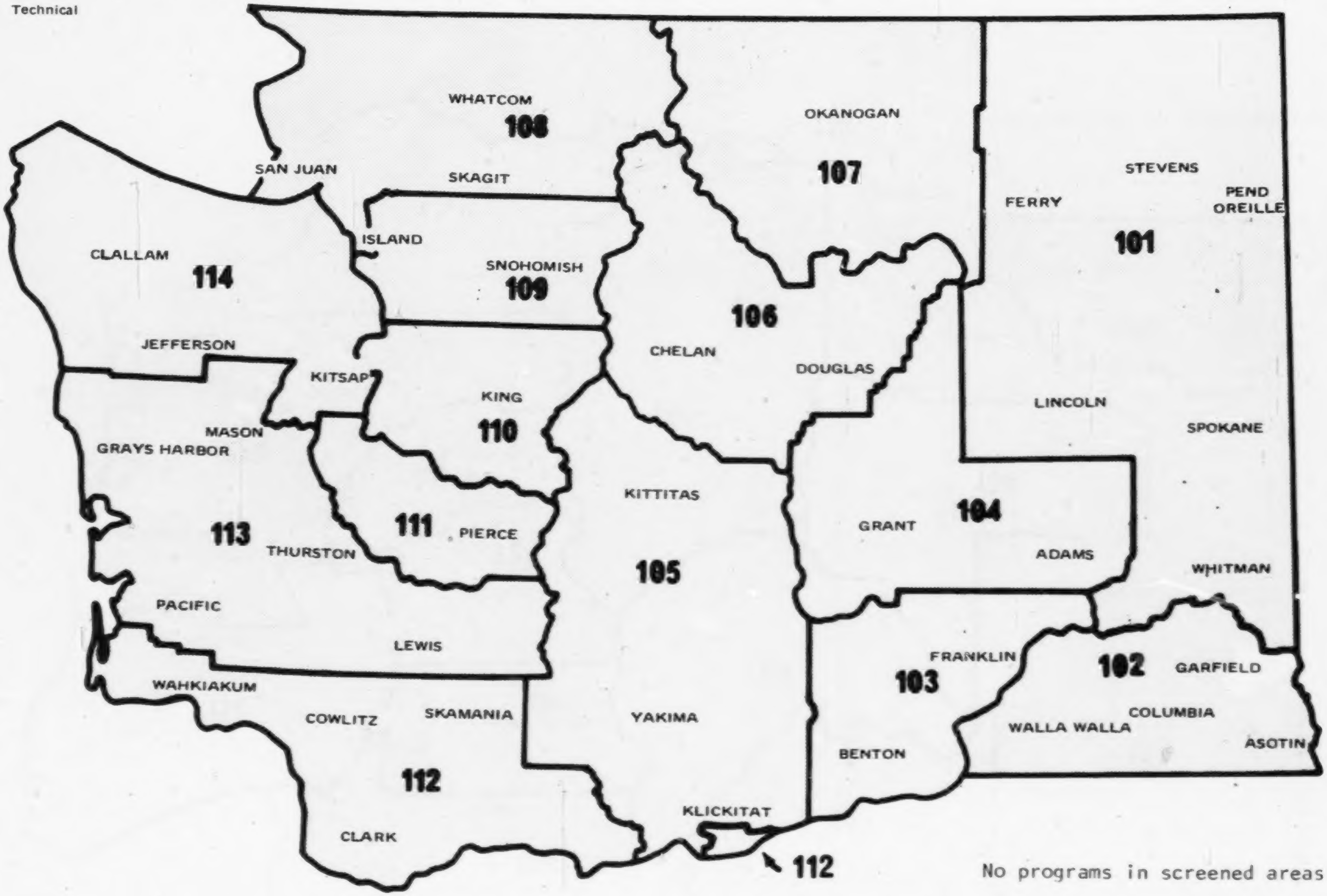
No programs in screened areas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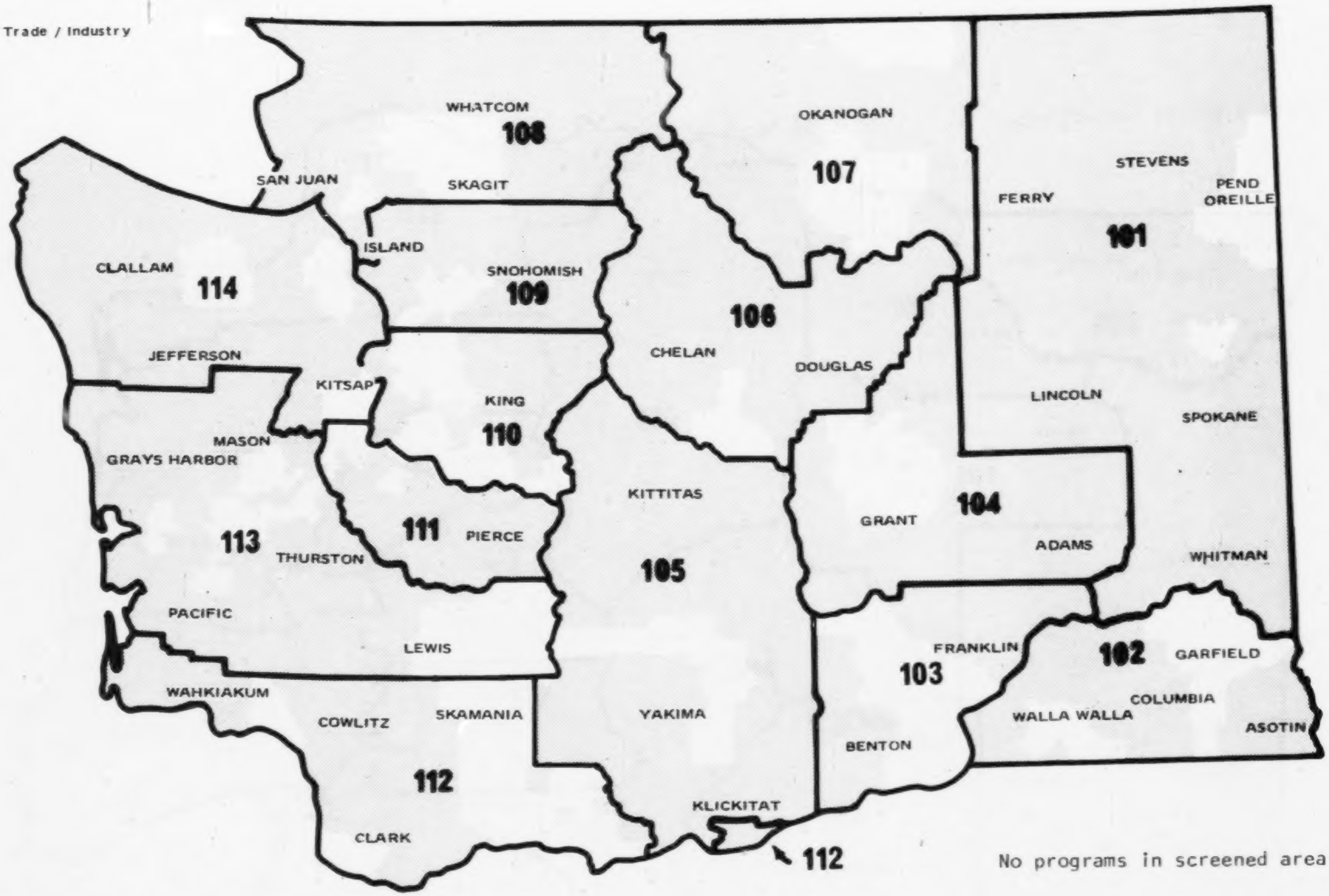
No programs in screened areas

Trade / Industry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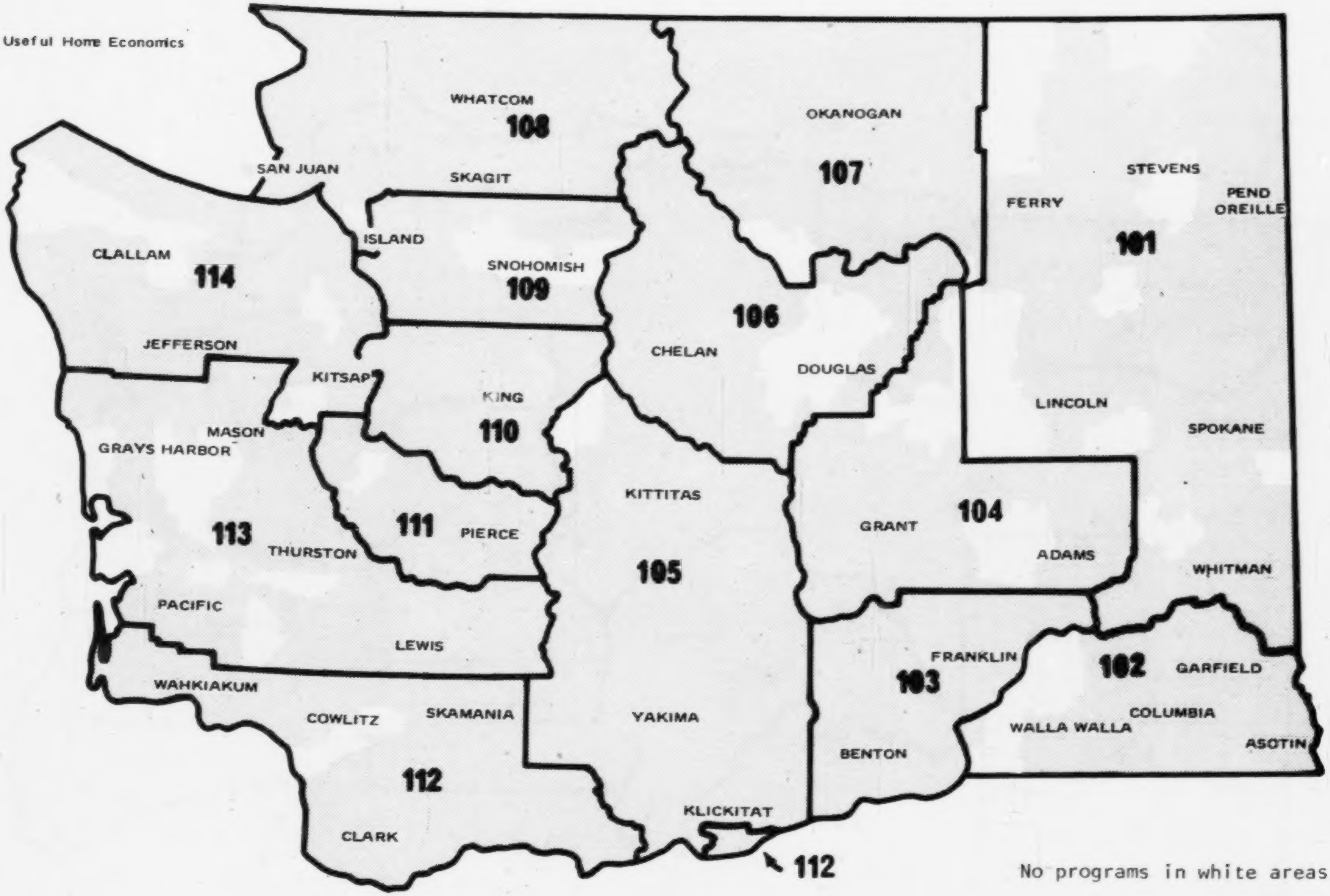
No programs in screened areas

Useful Home Economics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No programs in white areas

APPENDIX 5B: AVAILABILITY OF PUBLIC COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS IN WASHINGTON

LEGEND:
Available 70-71 only
X Available 71-72 only
0 Available both 70-71 and 71-72

BUSINESS & OFFICE
&
DISTRIBUTIVE EDUCATION

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
BUSINESS & OFFICE																							
Accounting Clerk			o	X	X		o	o		#				X		o				o			o
Accounting Machine Operator								X															
Administrative Management							X					X											
Banking & Credit					X			X															
Cashiering & Bank Teller					#			o			#												
Clerk Typist	o		o	X	o		o	o		#	#	X	X	o	o	o		o	o	o	o		o
Data Processing Clerk	X	X	X		o			o		o		X	o	#	X	X	X	#	X	o	X	o	
Data Processing Technician	o	X	o		o			o		o	#	o	o		o	X	o	#	o	o	o	X	
Data Processing (Business) S.A.										X		X							X			X	
Key Punch Operator					o			#		o	#	X				X	#	#		#	o	o	
Personnel Training								X															
Secretarial Science	#	o	o		o	o	o	o	o	o	#	o	#	o	o	o	o	#	o	o	o	#	o
Secretary, Foreign Languages																	#						
Secretary, Legal			#		X		X			#						X							
Secretary, Medical	#	X	#		o	#		X				o				o	#		#		X	#	
Stenographer					X		X					X											
DISTRIBUTIVE EDUCATION																							
Commercial Art & Related Occ.					o			o		#				o						o	o		
Food Marketing Management																X							
Marketing & Sales					X		X													#			o
Mid-Management	#	o	o		o	o	o	#	o	o	#		o	o	o	o	o	o	o	o	o	X	X
Receiving & Shipping					X							X											

\# Available 70-71 only
X Available 71-72 only
O Available both 70-71
and 71-72

HEALTH

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
Biological Technician							o																
Cardio-Pulmonary Therapy					o																		
Dental Assistant					o			o			#							o					
Dental Hygienist	o						o									#				o			
Dental Technician								o															
Inhalation Therapy		X		X	o			X					o										
Medical Assistant					#			o			#							X					
Medical Lab Technician		o					#	X	#														
Medical Photography																							X
Medical Records Technician				o	o		#	X														#	
Medical Ward Clerk					X			X				X											
Mental Health Technician					X											o							
Mental Retardation Technician																o							
Nurse, Aide		X			X							X		#									
Nurse, Associate Degree	o	o	o	X	o		o	X	X	o		o	o				o	#	o	o			o
Nurse, Practical	o	o	o	#	o	o		o	o	o		o		o	o		o		o	o	o	o	
Occupational Therapy														o									
Physical Therapy														o									
Radiology Technology	#	#		#																			o
Surgical Technician								X															
Veterinary Technician							X									o							
X-Ray Technician	o	o		o																			o

\# Available 70-71 only
X Available 71-72 only
O Available both 70-71 and 71-72

HOME ECONOMICS

&

AGRICULTURE

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
HOME ECONOMICS																							
Apparel Design								o															
Early Childhood Education					X		#	o						o		o	o			o			o
Food Preparation			#		o			o												o			
Food Processing																			X				
Food Service			o		o			o												#			
Food Service Preparation							o																o
Home Economics	#	X		X			#	#				#						X					
Interior Decoration							X													X			X
Sewing, Power					o			o															
Tailoring								o															
AGRICULTURE																							
Agri-Business	#	X	#		X	X															o	o	
Agri-Chemistry & General Chemistry							#					#							o				
Agri-Distribution																						o	
Agri-Mechanic					X																		X
Agri-Production		X																			o	o	
Farm Equipment Mechanic	X	o				#																o	
Farm Management	X				X																X		
Ornamental Horticulture			#		X			o			#							o		o			o

# Available 70-71 only
X Available 71-72 only
O Available both 70-71
and 71-72

CONSERVATION & RECREATION

&

OTHER

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
CONSERVATION & RECREATION																							
Evnironmental Control					X			X						X									
Fish & Game Management									#						o								
Fisheries									o														
Forest Technology		o					o		o			o		o			o				o		
Ocean Resource Occupations							o		#				#										
Pollution Control Technology							#																
Recreation Technology								X						o		X				X		o	o
Ski School Instruction		X																					
OTHER																							
Air Transportation Agent					X								X										
Boatbuilding								o															
Business Service Representative				X	X		o	X						o									
Central Service Technician								X					X										
Custodial Services																		X					
Flight Training	#	X	o									o					o	#			o	o	
Housekeeping Aide							X																
Mass Communications/Information							X					X											
Photography				X	#			o									o			#			
Real Estate	#	X		X	X		o	o						o			o						o
Transportation Management													X	o						X			
Undersea Diver													o										

#	Available 70-71 only
X	Available 71-72 only
O	Available both 70-71 and 71-72

TRADE & TECHNOLOGY

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
Airframe & Powerplant Mechanic					#	X		o									o	#				o	
Auto Body Mechanic	X		o		o			o				o		o			#		o	o			
Automotive Counterman												o											
Auto Mechanic	o	X	o		o	#		o	o	X		o		o			o		o	o		o	
Aviation Electronics					#			o															
Cabinet Making								o									#						
Carpentry		X			o			o						o			o		o				
Chemical Technology							o	X				#							#				
Civil Engineering Technician	o		#	#	#	o	o				#		X	o		#	#			o	o		o
Construction Technician						X										X			X				
Diesel Mechanic		X			o			o	X										o	o			
Drafting					o	#	o	o		o			o	o	#		o		#	o			
Electronics Technician	o	o			o	o	o	o		o	#	o		o	o		o	o	o	X	o		
Electronics Communications						X		o		#													
Engineering Technician			X					X	X	X			X						X				
Industrial Electronics & Electricity		X			X			o												#			
Industrial Engineering Technician			X				o			#		#	X	#			#		#	o			o
Instrumentation Technician					X			X				o											
Machinist			X		X	X	X	X		X		X	X										
Mechanic, Maintenance			X							X		o											
Mechanical Engineering Technician					X		o					X	X	X		#				X			
Metal Machinery Trades					#			#		#		#		o					o	o			
Metallurgy, Basic												X											
Office Machine Repair			o																				
Printing and Related Trades					o		#	o		X			o							o			
Prod. Tech & Quality Control							o	#					o										X
Pulp & Paper Technology												o		#			#						
Radio & TV Production								#															
Radio & TV Servicing								#												#			
Refrigeration & Air Conditioning		o			o															#			
Sheet Metal Trades		X			o			o															
Tool & Machine Design																							
Watchmaking Technology					o			#															
Welding	X	X	o		o	o		o		o		o	o	o			o		o	o		o	

# Available 70-71 only
X Available 71-72 only
O Available both 70-71 and 71-72

PERSONAL SERVICES
&
PUBLIC SERVICES

	Yakima Valley College	Wenatchee Valley College	Walla Walla College	Tacoma Comm. College	Spokane Comm. College	Skagit Valley College	Shoreline Comm. College	Seattle Comm. College	Peninsula College	Olympic College	Olympia Vo-Tech (C.C.C.)	Lower Columbia College	Highline College	Green River College	Grays Harbor College	Fort Steilacoom College	Everett Comm. College	Edmonds Comm. College	Columbia Basin College	Clark College	Centralia College	Big Bend Comm. College	Bellevue Comm. College
PERSONAL SERVICES																							
Airline Stewardess													o							o		#	
Barbering																							
Beauty Culture					o		X	o				X					o						
Dry Cleaning								o															
Instructional Aide			X	X	X		o	#			X			#		#	o			o			o
PUBLIC SERVICES																							
Air Traffic Control					#			#						o									
Fire Service Training	o															X		o	X	#		X	
Hotel-Motel Management					o			o						#									
Law Enforcement & Corrections	X		o	X	o		o			o		o	o	o		o	o		X	o	o		o
Library Assistant/Technician	#		o									o	o		o					o			
Parole & Probation Officer																							X
Public Administration																					X		
Traffic Engineering Technician																		X					
Welfare Aide					X																		X

#	Available 70-71 only
X	Available 71-72 only
O	Available both 70-71 and 71-72

APPENDIX 5C: AVAILABILITY OF PUBLIC VOCATIONAL-TECHNICAL INSTITUTE PROGRAMS IN WASHINGTON

LEGEND:
- # Available 70-71 only
- X Available 71-72 only
- 0 Available both 70-71 and 71-72

BUSINESS & OFFICE

&

DISTRIBUTIVE EDUCATION

	Tacoma Vo-Tech	Renton Vo-Tech	Lake Washington Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
BUSINESS & OFFICE					
Accounting Clerk	0	0	0	0	0
Accounting Machine Operator	0	0	0	0	0
Administrative Management				0	
Banking & Credit					
Cashiering and Bank Teller				0	
Clerk Typist	0	0	0	0	0
Data Processing Clerk	0	#		#	
Data Processing Technician	0	#		0	
Data Processing (Business) S.A.				0	
Kay Punch Operator		0		0	0
Personnel Training		0		0	0
Secretarial Science	0	0	0	0	0
Secretary, Foreign Languages					
Secretary, Legal		0		0	0
Secretary, Medical		0		0	0
Stenographer	0	0	0	0	0
DISTRIBUTIVE EDUCATION					
Commercial Art and Related Occ.				0	
Food Marketing Management		0		0	
Marketing and Sales		0		0	#
Mid-Management		0		0	
Receiving and Shipping				0	

#	Available 70-71 only
X	Available 71-72 only
0	Available both 70-71 and 71-72

CONSERVATION & RECREATION

&

OTHER

CONSERVATION & RECREATION	Tacoma Vo-Tech	Renton Vo-Tech	Lake Washington Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
Environmental Control					
Fish & Game Management				#	
Fisheries				0	
Forest Technology					
Ocean Resource Occupations				#	
Pollution Control Technology				0	
Recreation Technology					
Ski School Instruction					

OTHER	Tacoma Vo-Tech	Renton Vo-Tech	Lake Washington Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
Air Transportation Agent					
Boatbuilding	0				
Business Service Representative					
Central Service Technician					
Custodial Services	0	0		0	
Electrical Appliance Repair	0				
Flight Training				0	
Furniture Upholstering	0				
Housekeeping Aide				0	
Mass Communications/Information					
Painting & Decorating	0				
Photography				0	
Real Estate		0	0	0	
Small Engine Mechanics	0				
Trade Sewing	0				
Transportation Management		0			
Undersea Diver					

#	Available 70-71 only
X	Available 71-72 only
0	Available both 70-71 and 71-72

HEALTH

	Tacoma Vo-Tech	Renton Vo-Tech	Lake Washington Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
Biological Technician					
Cardio-Pulmonary Therapy					
Dental Assistant	0			0	0
Dental Hygienist					
Dental Technician	0				
Inhalation Therapy					
Medical Assistant					
Medical Lab Technician				0	
Medical Photography					
Medical Records Technician				0	
Medical Ward Clerk				0	
Mental Health Technician					
Medical Retardation Technician					
Nurse, Aide	0			0	X
Nurse, Associate Degree					
Nurse, Practical	0			0	0
Occupational Therapy				#	
Physical Therapy					
Radiology Technology					
Surgical Technician					
Veterinary Technician					
X-Ray Technician					

# Available 70-71 only
X Available 71-72 only
0 Available both 70-71 and 71-72

HOME ECONOMICS

&

AGRICULTURE

	Bellingham Vo-Tech	Clover Park Vo-Tech	Lake Washington Vo-Tech	Renton Vo-Tech	Tacoma Vo-Tech
HOME ECONOMICS					
Apparel Design			0	0	
Early Childhood Education	0		0	0	
Food Preparation	0	#	0	0	0
Food Processing			0	0	0
Food Service	#	#	0	0	0
Food Service Preparation			0	0	0
Home Economics	0		0	0	0
Interior Decorating			0	0	X
Sewing, Power	0			0	
Tailoring	0	0	0	0	
AGRICULTURE					
Agri-Business					#
Agri-Chemistry & General Chemistry					
Agri-Distribution					#
Agri-Mechanic				X	
Agri-Production					#
Farm Equipment Mechanic					
Farm Management					
Ornamental Horticulture				0	#

# Available 70-71 only
X Available 71-72 only
0 Available both 70-71 and 71-72

TRADE & TECHNOLOGY

	Tacoma Vo-Tech	Renton Vo-Tech	Lake Wash. Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
Airframe & Powerplant Mechanic				0	
Auto Body Mechanic	0	0	0	0	0
Automotive Counterman				0	0
Auto Mechanic	0	0	0	0	0
Aviation Electronics				0	
Cabinet Making	0				0
Carpentry	0				0
CATV & Closed Cir. T.V. Tech.	0				
Chemical Technology	#				
Civil Engineering Technician	0	0			0
Construction Technician				0	
Diesel Mechanic	0				0
Dining Room Service	0				
Drafting	0	0	0	0	0
Electrical	0				
Electronics Technician	0	0	0	0	0
Electronics Communications	0	0		0	0
Engineering Technician	0			0	0
Industrial Electronics & Electricity	0	0	0		0
Industrial Engineering Technician	0	#		#	#
Instrumentation Technician	0				
Machinist	0	0		0	0
Mechanic, Maintenance		0		0	
Mechanical Engineering Technician	0			0	
Metal Machinery Trades	0	0		#	0
Metallurgy, Basic		0			
Office Machine Repair		0		0	
Printing and Related Trades				0	X
Prod. Tech. & Quality Control	0	0			#
Pulp & Paper Technology					
Radio & TV Production	0			0	
Radio & TV Servicing	0	0		0	0
Refrigeration & Air Conditioning	0	0			0
Sheet Metal Trades	0				0
Tool & Machine Design		0		0	
Watchmaking Technology	0				
Welding	0	0	0	0	0

Available 70-71 only
X Available 71-72 only
0 Available both 70-71 and 71-72

PERSONAL SERVICES

&

PUBLIC SERVICES

PERSONAL SERVICES	Tacoma Vo-Tech	Renton Vo-Tech	Lake Washington. Vo-Tech	Clover Park Vo-Tech	Bellingham Vo-Tech
Airline Stewardess					
Barbering	0				
Beauty Culture	0		X	0	X
Dry Cleaning				0	
Instructional Aide		0		0	
PUBLIC SERVICES					
Air Traffic Control					
Fire Service Training	0				
Hotel-Motel Management				0	
Law Enforcement & Corrections					
Library Assistant/Technician				0	
Parole & Probation Officer	X				
Public Administration					
Traffic Engineering Technician					
Welfare Aid					

#	Available 70-71 only
X	Available 71-72 only
0	Available both 70-71 and 71-72

CHAPTER 6

EMPLOYER VIEWPOINTS

Any overall evaluation of vocational programs must consider more than the comparison of manpower requirements and vocational enrollments as presented in Chapter 3 of this report. Of at least equal importance is an assessment of the quality of the several vocational programs and their respective graduates. An important part of this quality assessment is the viewpoints of the employers who hire graduates of vocational programs. In an effort to obtain information related to employer views, the Washington State Advisory Council for Vocational Education contracted with the Bureau of School Service and Research, University of Washington, to conduct a statewide survey of both employer and employee viewpoints on various matters relating to vocational education. The instrument used as a guide to the interviews is found in Appendix 6A and a list of the 63 participating firms is found in Appendix 6B. The sample firms included in the survey were selected on the basis of geographical location, size and industrial classification.

In Table 6.1a, we see that the firms were selected from varied communities across the State. Eleven of the 39 counties of Washington State are represented in the sample. Almost two-thirds of the 63 firms were located in King, Pierce, a and Snohomish counties and the selected firms generally reflect the population distribution across the State.

In Table 6.1b, we see that the average size of the firms interviewed was 1,234 with the size ranging from the Boeing Company (40,000 employees) to the Vanguard Exploration and Advance Real Estate and Construction Company with only four employees each. The comparative sample and Washington State distributions according to firm or agency classification is presented in Table 6.1c. The percentage of firms or agencies in a specific category does not differ by more

TABLE 6.1a

SAMPLE DISTRIBUTION BY AREA CODE[a]

Area		Number of Firms
Code	Description	
60	Vancouver, Camas	1
80	Longview, Kelso	3
133	Grant County	1
140	Aberdeen, Hoquiam	1
170	Seattle	24
171	Balance of Seattle Adm. Area	2
172	Renton, Andover, Industrial Park	1
173	Balance of Renton Adm. Area	1
180	Bremerton, Bangor, Pt. Orchard, Pt. Gamble	2
270	Tacoma (except Route 2)	9
310	Everett, Marysville, Pinehurst, Lowell	4
320	Spokane	11
340	Olympia, Lacey, Tumwater	2
390	Yakima, Union Gap, Selah	1
Total for State		63

[a] The area codes are those used by the State of Washington, Employment Security Department, Research and Statistics Branch.

TABLE 6.1b

SAMPLE DISTRIBUTION BY SIZE OF FIRM

Size Category	Number of Firms
0 - 49	9
50 - 99	11
100 - 249	17
250 - 499	9
500 - 999	4
1000 - 2499	7
2500 - 4999	3
5000 +	3
Total	63

TABLE 6.1c

SAMPLE DISTRIBUTION BY TYPE OF FIRM OR AGENCY[a]

Firm or Agency Classification	Sample		State of Washington[b]	
	Number	Percent	Number	Percent
Construction	3	4.8	75,515	6.1
Manufacturing	14	22.1	266,875	21.6
Transportation and Communications	3	4.8	55,262	4.5
Utility and Sanitary	3	4.8	38,375	3.1
Wholesale	3	4.8	59,857	4.9
Retail	9	14.3	205,049	16.6
Finance and Insurance	3	4.8	68,745	5.6
Business and Repair	3	4.8	38,395	3.1
Entertainment and Recreation	2	3.2	10,845	.9
Welfare and Religion	1	1.6	20,802	1.7
Legal and Engineering	2	3.2	29,731	2.4
Personal	2	3.2	52,494	4.3
Health	5	7.9	72,330	5.9
Education	5	7.9	112,965	9.2
Public Administration	3	4.8	68,861	5.6
Agriculture, Mining, and Fishing	2	3.0	56,962	4.5
Total	63	100.0	1,233,063	100.0

[a] The firm or agency classifications are consistent with the categories used in both the U.S. Census and in the Employment Security Department, State of Washington.

[b] The State of Washington data is reflective of the labor force distribution as reported in the 1970 U.S. Census.

than 3 percent from the overall employment distribution for the State of Washington.

In looking at the employee distribution in Table 6.1d we note that the sample distribution is generally consistent with statewide employment patterns as reported in the 1970 U.S. Census. The heavy emphasis on the craftsmen and foremen category results primarily from the inclusion of the Boeing Company, a firm of 40,000 employees which requires an advanced technology of production.

In each of the 63 firms included in the survey, the Bureau staff attempted to interview three persons, one each from the central management, line supervision, and a non-supervisory employee groups. The actual distribution of the sample of 189 respondents is shown in Table 6.1e; and, in reporting the survey results in subsequent sections of this chapter, differences among the three employee classifications are presented, particularly when such differences may provide input to the assessment of vocational education as viewed by employing firms and agencies.

General Assessment of Vocational Programs

All of the 189 respondents were asked to select items which would result in the greatest improvement of vocational preparation programs. More specifically, each respondent was asked to select three of the potential areas of need as listed in Table 6.2a. Clearly, more respondents (56 percent) selected "more related on-the-job experience" than any other single factor. The teaching of more personal relations skills was rated no lower than second by any of the respondent groups and was selected by approximately 50 percent of the total sample. It is interesting to note that the relative position of these first two areas of need--more related on-the-job experience and more personal relations skills--is different for central management and the other two employee categories. Only 44.4 percent of the central managers as compared with over 60 percent of the other two groups selected "more related on-the-job experience" as an area of greatest improvement in present

TABLE 6.1d

ESTIMATED EMPLOYEE DISTRIBUTION IN SAMPLE FIRMS AND AGENCIES[a]

Employee Classification	Sample[b]		State of Washington[c]	
	Number	Percent	Number	Percent
Professional and Technical	12,745	16.4	206,359	16.7
Managers and Proprietors	5,906	7.6	112,802	9.1
Clerical Workers	10,505	13.5	215,293	17.5
Sales Workers	9,481	12.2	91,034	7.4
Craftsmen and Foremen	17,803	22.9	179,705	14.6
Operatives	9,616	12.4	161,406	13.1
Laborers (Farm and Non-farm)	8,004	10.3	105,165	8.7
Service Workers	3,652	4.7	160,299	13.0
Total	77,712	100.0	1,233,063	100.0

[a] The employee classifications as used here are consistent with the categories as used in the U.S. Census.

[b] In certain firms, including the Boeing Company, employee distribution had to be estimated from figures in similar industry or agency types. For this reason, all sample figures must be interpreted as only rough estimates of actual distribution.

[c] The State of Washington data is based upon the 1970 U.S. Census.

TABLE 6.1e

SAMPLE DISTRIBUTION BY EMPLOYEE TYPE

Respondent Category	Number of Respondents
Central Office Personnel Management (including personnel manager, employment director, or training supervisor)	63
Line Supervision Responsibilities (includes persons holding positions with supervisory responsibilities -- foreman, branch manager, or department head)	69
Non-supervising Employee (includes persons who have no direct supervisory responsibility and who are in positions not designated as professional or requiring a baccalaureate degree)	57
Total	189

TABLE 6.2a

GREATEST NEEDS IN VOCATIONAL PREPARATION[a]

Areas of Need	Percent of Respondent Group[b]			
	Central Management	Line Supervisor	Non-supervisory Employees	Sample Total
Provide more related "on-the-job" experience	44.4	60.9	63.2	56.0
Teach more personal relations skills	50.8	49.3	49.1	49.7
Teach more job skills	36.5	47.8	31.6	39.2
Emphasize more organizational skills	28.6	39.1	45.6	37.6
Use more resource persons from occupational fields	27.0	20.3	21.1	22.8
Teach more math skills	28.6	18.8	15.8	21.2
Teach more writing skills	25.4	21.7	10.5	19.6
Teach more speaking skills	15.9	15.9	22.8	18.0
Teach more reading skills	25.4	11.6	15.8	17.5
Provide greater variety in program's curriculum	11.1	8.7	14.0	11.1
Other	3.2	2.9	3.5	3.2

[a] Each respondent was asked to circle the three items considered to result in greatest improvement in present vocational programs. (Question #2, Part II)

[b] The respondent groups are as identified in Table 6.1e and the percent figure represents the percent of the designated group selecting the listed area of need.

vocational preparation programs. This result is entirely consistent with the general views toward "increased on-the-job experience" as reported by each of the three groups later in this chapter (see Table 6.3a).

Only two other areas of need listed in Table 6.2a were selected by more than 25 percent of each of the respondent groups. These areas were "the teaching of more job skills" and "greater emphasis on organizational skills". It is clear that both employers and employees rate the teaching of job and organizational skills as being at least as important as the basic communications skills of mathematics, writing, speaking, and reading. Very few respondents in any of the three employer categories recommended lesser emphasis on any of the items listed in Table 6.2a.

In Table 6.2b, we see a summary of employers' perceptions of recently hired employees and note that the training in almost all areas was rated slightly better than adequate. Deficiencies in writing and organizational skills appear to be of greatest concern to the overall sample of 182 persons choosing to respond to this question. The same two factors -- writing and organization skills -- were most important to each of the central management, line supervisor, and non-supervisory employee subgroups. The fact that, from the employer's perspective, concern over writing and organizational skill deficiencies took precedent over the job skill category may seem, at first glance, to contradict the earlier employer concern that more emphasis on job skills was important in improving vocational education programs. (In Table 6.2a, we note that 39.2 percent of all respondents selected the teaching of more job skills as an important need.) One reasonable interpretation of this possible inconsistency in rating organizational and writing skills ahead of job skills in terms of applicant deficiency might be that employers are quite concerned over deficiencies in the writing and organizational capability of their employees but fail to see these as primary concerns for vocational education programs. It is often assumed that these skills of writing

TABLE 6.2b

RATING OF EMPLOYEE SKILL CAPACITY[a]

Item	Average Rating for Employee Groups				
	Clerical Employees (71)	Sales Employees (30)	Craftsmen and Operatives (46)	Service Workers (33)	All Employees[b] (182)
Reading Skills	1.61	1.67	1.98	1.88	1.80
Mathematics Skills	1.81	1.90	2.11	2.04	1.96
Writing Skills	1.86	2.00	2.16	2.00	2.03
Personal Relations Skills	1.68	1.36	1.91	1.86	1.70
Organizational Skills	1.93	1.75	2.15	2.03	2.00
Speaking Skills	1.73	1.57	1.96	1.97	1.81
Job Skills	1.76	1.83	1.94	1.86	1.80

[a] Each respondent was asked to rate the capability of recently hired employees in each of the skill areas as listed. A 1 rating was excellent, a 2 rating was adequate, and a 3 rating was poor. The numbers in parentheses represent the number of the total of 189 respondents choosing to rate recently employed persons in the category as indicated. (Question #1, Part II)

[b] The average ratings in this case represent an overall assessment for all employee categories. The ratings were taken from the "all employee" column for those respondents choosing to make a judgment in that column; for all other respondents, the rating used to compute this average was simply an average of their ratings in all other employee categories for which a rating was made.

and organization are taught in non-vocational classes and are not therefore viewed as part of the vocational program.

Whatever the relative ordering of priorities in terms of vocational education programs, it is clear from Table 6.2c that both central managers and line supervisors view "good attitudes and work habits" as the single most important applicant characteristic. The low average rating of 1.19 for this characteristic resulted from the fact that 106 of the 129 persons rated this factor as "very important" to the job applicant. In the case of the other four characteristics, no more than 80 of the respondents assigned this "very important" classification. This same concern over good attitudes and work habits was also evident by the fact that over 75 percent of both the central management and line supervisory respondent groups (in responding to Question #5, Part II of the employer survey of Appendix 6A) selected good attitudes and work habits as one of the factors needing greater attention in vocational training programs.

Before concluding this discussion of employer views on vocational training needs, it is appropriate to compare the findings of this survey conducted by the Bureau with an earlier Washington State employer survey conducted by Charles E. Peck and F.L. Denman under a grant from the U.S. Office of Education. This latter survey was restricted to agencies employing persons in distributive occupations (sales, merchandising, etc.) but was quite comprehensive in nature and involved interviews in 221 firms in the State of Washington. In Table 6.2d, we note that Peck and Denman found that "human relations" and "personal characteristics" (the latter of which is quite similar to the "good attitudes and work habits" used in the BSSR study) were judged by employers to be most important to good job performance. This high ranking of "human relations" and "personal characteristics" was present whether the employer was referring to supervisors or non-supervisors; and, hence, we can reasonably conclude that prospective employees, at least those in distributive occupations, will be judged more on these personal and human relations factors than

TABLE 6.2c

IMPORTANT APPLICANT CHARACTERISTICS [a]

Characteristic	Average Rating by Manager Group [b]		
	Central Management	Line Supervisors	All Managers
Specific Job Skills	1.55	1.40	1.47
Good Communications Skills	1.72	1.57	1.64
Good Personal Relations Skills	1.62	1.56	1.59
Good Attitudes and Work Habits	1.25	1.15	1.19
Experience in a Similar Position	2.27	2.22	2.24

[a] Each respondent in the management categories (central office personnel and line supervisory) was asked to rate the five characteristics according to the scale: 1 - very important, 2 - important, 3 - unimportant. (Question #4, Part II)

[b] The average is simply the arithmetic mean of ratings for all respondents in the designated category. The total category in this case includes only management groups. Non-supervisory employees were not asked to respond to the question.

TABLE 6.2d

REQUIREMENTS FOR GOOD PERFORMANCE IN MARKETING AND DISTRIBUTION JOBS[a]

Item	Rank Order of Importance	
	Employers About Supervisors[b]	Employers About Non-supervisors[c]
Human Relations	1	2
Personal Characteristics	2	1
Technical and Product Knowledge	3	3
~~Oral and~~ Written Communication	4	4
Mathematics	5	5
Marketing	6	6
Economics	7	9
Bookkeeping and Accounting	8	7
Machines of Business	9	8

[a] Relative Importance and Preparation for Distributive Education Subject Areas, Volume I, U.S. Department of Health, Education and Welfare, January, 1968. Respondents were asked in an interview to rank order the importance of each of the items as listed.

[b] Summarizes responses from 136 employers in selected firms in Washington State.

[c] Summarizes responses from 213 employers in selected firms in Washington State.

on their various communication skills.

In examining Table 6.2e (also taken from the Peck and Denman Survey), we observe that the adequacy of preparation is judged to be the poorest in those very areas -- human relations and personal characteristics -- where the overall importance is viewed to be the greatest. This presents a rather frustrating picture to concerned vocational educators, because, in a sense, these areas of human relations and personal character are the most difficult to teach in the school setting. Schools have always been more successful in influencing the cognitive growth of young people than in changing (or improving) their basic attitudes and work habits. Whatever difficulties may exist in interpreting these employer perceptions, they must be accepted as important in any efforts to improve vocational programs in the State. Perhaps more than anything else, these employer perceptions must be understood by students as part of the reality existing in the working world.

In summarizing this section on employer assessment of vocational programs and applicants, we conclude that more attention to personal (or human relations) skills and good attitudes and work habits are, according to employers, high priorities for improving vocational preparation programs. Employers are also concerned that job skills be given considerable attention in training programs and they seem sensitive to the need for more related "on-the-job" experience as one way of assuring improvements in this job skill area. In the next section, we examine more specifically the views of both employer and employee groups toward expanding work experience as part of vocational preparation programs.

Attitudes Toward Work Experience Programs

A major part (the entire third section of the interview guide in Appendix 6A) of the BSSR employer survey was directed to obtaining viewpoints on work experience programs. This topic of work experience as a part of vocational preparation has stimulated considerable interest in recent years and has already been addressed in some detail in Chapter 4 of this report. At this point we are interested in

TABLE 6.2e

ADEQUACY OF PREPARATION OF PRESENT APPLICANTS[a]

Item	Rank of Preparation Adequacy	
	Employers About Supervisors	Employers About Non-supervisors
Human Relations	9	8
Personal Characteristics	8	7
Technical and Product Knowledge	6	9
Oral and Written Communication	7	6
Mathematics	2	3
Marketing	3	5
Economics	5	4
Bookkeeping and Accounting	4	2
Machines of Business	1	1

[a] Data source is same as for Table 6.2d. All respondents in this case were asked to rank order the adequacy of preparation in each of the areas with 1 being the best and 9 the poorest.

examining employer views toward expanding work experience programs in in assessing the conditions under which employers would be willing and able to provide an increased number of job training stations.

In Table 6.3a, we see that all three groups -- central management, line supervisors, and non-supervisory employees -- respond favorably to greater amounts of "on-the-job" experience as part of the training program. While line supervisors are significantly more favorable than either central management or non-supervisory employee groups, over 80 percent of all three groups responded either favorably or very favorably to such increases.

When asked why they favored "on-the-job" experiences as part of the training program, many respondents indicated that it provided a much more realistic and genuine kind of training experience. Many also indicated that certain personal characteristics, human relations skills, and job skills could not be taught effectively as part of the classroom experience.

Returning to the Peck and Denman survey of distributive training needs, we see in Table 6.3b a listing of various characteristics which were identified by coordinators as being best taught in an "on-the-job" setting. It is clear that the characteristics listed in Table 6.3b are many of the same attitudes and work habits judged by employers participating in the BSSR survey to be extremely important as applicant characteristics. Hence, if we accept the judgment of school coordinators of vocational programs, we must conclude that improving personal characteristics and work habits of vocational trainees will be achieved most easily through a substantial expansion of the work experience component of the vocational program. While significant barriers must be faced in pushing toward such expansion, it is at least encouraging that both employers and vocational educators share a common perception regarding this need.

In an effort to more accurately assess the willingness of employers to accept additional job trainees, the BSSR interview team asked each respondent to

TABLE 6.3a

VIEWS TOWARD "ON-THE-JOB" EXPERIENCE[a]

Respondent Group[b]	Percent of Respondent Group				
	Very Favorable	Favorable	Undecided	Unfavorable	Very Unfavorable
Central Management (63)	54.0	30.2	11.1	3.1	1.6
Line Supervisors (69)	72.5	27.5	0.0	0.0	0.0
Non-supervisory Employees (57)	62.5	28.6	3.6	5.4	0.0
Sample Total (189)	63.3	28.7	4.8	2.7	0.5

[a] Each respondent was asked to give his general view toward the development of greater amounts of on-the-job experience as a part of all training programs. (Question #1, Part III)

[b] The respondent groups are those presented in Table 6.1e. Numbers in parentheses are the sample size for each group.

TABLE 6.3b

PERSONAL CHARACTERISTICS BEST TAUGHT ON THE JOB[a]

Characteristic	Percent of Coordinators Preferring Training at On-The-Job Location[b]	
	High School	Community College
Application to the task	85	79
Willingness to take orders	83	74
Showing interest in job	83	85
Ability to get along with people	81	78
Safety consciousness	81	72
Ability to apply knowledge	76	77
Willingness to do routine work	76	69
Pride in doing work well	66	56
Alertness	59	50
Dependability	58	51

[a] Survey to Determine Appropriate Occupational Programs In the Field of Distribution and Marketing at Various Levels of Education, Volume II, U.S. Department of Health, Education, and Welfare, January, 1969. The respondents were asked in a questionnaire to indicate the most appropriate placement of various components of the distributive education (D.E.) program. Options available were the D.E. class, on-the-job, Non-D.E. classes, and other.

[b] The sample included 334 high school teacher-coordinators and 108 coordinators in community colleges.

indicate the willingness of his firm to provide additional job training stations. Of the 63 firms involved in the BSSR survey, only 13 indicated that they would definitely not take additional job trainees. Forty-six firms indicated a willingness to expand their job training stations and four firms were uncertain about such expansion. In Table 6.3c, we note further expansion would likely be greatest in the clerical and craftsman categories, with 21 and 17 firms respectively taking additional trainees in these areas.

In attempting to gain more specific information as to the numbers of additional trainees to be accepted under varying conditions, the BSSR interviewers obtained from most firms an estimate of the exact number of additional trainees, assuming both present financial arrangements and a provision for substantial outside funding. Fifty-one of the participating firms provided estimates under these two separate conditions. The average additional number of trainees assuming present financial arrangements was four per firm. This represented approximately one percent of the present labor force in the fifty-one firms or agencies. This same group of 51 businesses indicated a willingness to accept an average of three additional trainees per firm if outside funding were provided for both salary and benefit costs and the supervision time required by the firm. Firms in the service fields (particularly in business, repair, and entertainment) seemed the most willing to accept additional job trainees.

Several respondents were hesitant in responding to the question of additional trainees, particularly wihtout knowing more about the source and control involved with the outside funding option presented in the interview guide. Over 70 percent of those firms willing to accept additional trainees (under either of the conditions as outlined earlier) indicated a willingness to do so without replacing regular employees of the firm. Only 15 percent indicated that they would use trainees to replace regular employees and 10 percent were uncertain regarding this matter of replacement of regular employees. Based upon this limited information obtained from the BSSR sample, we conclude that some modest expansion of present training

TABLE 6.3c

AREAS FOR ADDITIONAL JOB TRAINEES[a]

Response Category	Number of Firms	Percent of Firms
Will take additional job trainees[b]	46	73.0
Clerical (21)		
Sales and Merchandising (10)		
Craftsmen (17)		
Service Workers (11)		
Will not take additional job trainees	13	20.6
Uncertain	4	6.4
Total Respondent Firms	63	100.0

[a] Firm spokesman was asked in each case in what areas, if any, his firm would be willing to take on more job trainees, assuming present financial arrangements. (Question #4, Part III)

[b] The numbers in parentheses represent the number of the 46 firms indicating a willingness to take on additional trainees in the designated job classification.

stations can be achieved within existing financial arrangements; however, any increases beyond one or two percent of the present employment force will be difficult without additional outside funding. Many of the employers who were not willing to add job trainees in any area felt that their competitive position within the industry made it financially difficult to assist in the provision of job training stations. Many simply viewed the additional costs of such training to present an impossible burden for their firm.

General Views on Vocational Education

The final part of the BSSR interview attempted to identify general views held by the three employer groups and to observe the extent of agreement on certain directions for vocational planning in the years ahead. Actually, each of the fourteen items included in Part IV of the BSSR interview guide (found in Appendix 6A) related to one of the five attitude scales as presented in Table 6.4a. Each of the five subscales consists of from two to three items of similar content. For example, Items 6, 8, and 10 of the interview guide are each a part of the subscale designed to measure the extent to which respondents view "vocational courses as having a low status in the school." This subscale and the contributing items provide the following result:

	Mean Scores			
	Central Management	Line Supervisions	Non-supervisory Employees	Total
Subscale Statement Vocational courses generally have a low status in our schools.	3.21	3.35	3.51	3.35
Contributing Items Item 6--Vocational classes tend to attract lower achievers.	3.29	3.47	3.53	3.43
Item 8--Most teachers of vocational programs have a lower status than teachers of academic classes.	3.50	3.42	3.81	3.56
Item 10--Vocational courses have a lower status among students than academic classes.	2.84	3.14	3.21	3.06

TABLE 6.4a

GENERAL ATTITUDES TOWARD VOCATIONAL EDUCATION[a]

Subscale Statement	Items Included in Subscale[b]	Mean Score for Respondent Group[c]			
		Central Management	Line Supervisors	Non-supervisory Employees	Sample Total
Vocational education is an important part of the school program for all students.	9,12	2.30	2.19	2.18	2.22
Specific vocational programs are desirable as a means of preparing for the working world.	1,2,7	2.61	2.57	2.64	2.60
Vocational courses generally have a low status in our schools.	6,8,10	3.21	3.35	3.51	3.35
The comprehensive school which includes both vocational and academic programs is superior to having separate specialized vocational schools.	3,13,14	2.69	2.54	2.82	2.68
Counselors are generally effective in advising students on job opportunities.	4,5,11	3.28	3.08	3.10	3.15

[a] The attitude subscales as presented here are a summary of the individual items included in Part IV of the interview guide as presented in Appendix 6A. The mean and standard deviation of individual items is recorded in Appendix 6C of this report.

[b] The items as listed are found in Part IV of the interview guide in Appendix 6A and the direction has been reversed on those items which are underlined.

[c] A 1-5 scale has been used for all questions with 1 being strongly agree and 5 being strongly disagree. A 3.0 rating is a neutral response.

Note that each of the contributing items seems to represent an independent component of the subscale statement and we assume primarily on the basis of statement content that all three items contribute to the subscale statement as presented. Because of the small numbers in three subgroup samples, differences between groups of .6 or greater are generally required for assuming significance at the 95 percent confidence level; however, because of varying standard deviations on the individual subscale statements, the exact difference required for significance varies with each of the statements or items. Since we are not viewing these statements as a firm basis for decision making, it is preferable simply to look at the general direction and intensity of feeling for the representative populations surveyed rather than attempting in any precise way to estimate the views of the total populations represented by the survey samples.

Using this preference as a guide, sample responses to most of the subscale statements in Table 6.4a are substantially different than neutral (or 3.0). Only in the case of counselor effectiveness is there a generally neutral response. In most cases, the similarity in viewpoint among the three groups is substantial. As part of a general review of these attitude subscales, the following observations merit special attention:

> Vocational education is clearly accepted as an important part of the school program for all students (Statement #1, Table 6.4a). While the differences between the three respondent groups are not substantial, it is evident that line supervisors and non-supervisory employees tend to be slightly more supportive of this position than respondents in the central management group.
>
> Specific vocational programs are viewed to be desirable by all three respondent groups (Statement #2, Table 6.4a). The mean response for each of the employee subgroups differs only slightly from the overall mean of 2.60. There also exists a general support for including both vocational and academic programs in the same educational institution (Statement #4, Table 6.4a). The 2.68 overall mean score on this statement indicates a generally positive reaction; however, it should be cautioned that no effort was made to differentiate between the secondary and post-secondary levels in making responses to this particular attitude scale.

All three respondent groups tended to disagree with the statement that vocational courses have a low status in our schools (Statement #3, Table 6.4a). This disagreement was slightly less for the central management group; however, the overall response tended toward strong disagreement with the statement as presented in Table 6.4a. It might also be of interest to note that the overall sample of students, staff, and parents in the NEVAC districts (see Table 4.1b of this report) provided a generally neutral response to this same item. Hence, we might conclude that there is at least some substantial number of people in the general population who view vocational education as having less stature than other aspects of the school program.

Of particular importance in concluding this discussion of the BSSR employer attitude survey is the generally enthusiastic response of all persons who were interviewed. Employers seemed genuinely appreciative of the opportunity to express their views on matters related to vocational training. Several commended the interviewers, the State Advisory Council, and the legislature for seeking employer input on ways for improving vocational training programs; and while the employers obviously did not always agree on the most appropriate direction for change, it is likely that those participating in a survey of this type are more inclined in the future to assist with needed expansion and improvement of vocational services in their respective communities.

APPENDIX 6A: EMPLOYER SURVEY

EMPLOYER SURVEY

Part I: Information on Employment Firm and Respondent

Name of Firm ______________________ Address of Firm ______________________

Person Interviewed ______________________ Position ______________________

8-9

Classification of Firm (Circle One)

(The firm classifications will not be used individually as categories in the data analysis and are included here simply as an aid in assuring representation in the overall sample.)

1. Construction
2. Manufacturing
3. Transportation
4. Utility and Sanitary Services
5. Wholesale Trade
6. Retail Trade
7. Finance and Insurance
8. Business and Repair Services
9. Entertainment and Recreation Services
10. Welfare and Religious Services
11. Legal, Engineering, and Professional Services
12. Personal Services
13. Health Services
14. Education Services
15. Public Administration
16. Agriculture, Mining, and Fishing
17. Other

10-32

Number of Employees

__|__|__|__|__ Total Employment Force

Employee Distribution (in percent):

__|__ Professional and Technical

__|__ Managers and Proprietors

__|__ Clerical Workers

__|__ Sales Workers

__|__ Craftsmen and Foremen

__|__ Operatives

__|__ Nonfarm Laborers

__|__ Service Workers

__|__ Farm Workers

33

Orientation of Respondent

1. Central Office Personnel Management
2. Line Supervision Responsibilities
3. Non-supervising Employee
4. Other ______________________

____

Part II: General Assessment of Vocational Preparation

34-6

1. Please rate the more recently hired employees of your firm as a group, at the time of their initial employment, on each of the items as listed:

   Rate them according to separate categories and/or overall with the following scale:

   1 - Excellent

   2 - Adequate

   3 - Poor

   Leave space blank if no opinion is given on any specific items.

Skill Areas	A	B	C	D	O
Reading Skills					
Math Skills					
Writing Skills					
Personal Relations Skills					
Organization Skills					
Speaking Skills					
Specific Job Skills					

A - Clerical Employees
B - Sales Employees
C - Craftsmen and Operatives
D - Service Workers
O - All Employees

69-7

2. a) Which of the factors as listed would result in the greatest improvement in present vocational preparation programs? (Circle the three items considered to be of greatest importance and, in formulating response, consider training programs for clerical, sales, craftsmen, operative, and service worker categories.)

   b) Would your response vary significantly for the separate work categories of clerical, sales, craftsmen, operative, and service worker? How?

   ____

   ____

   ____

   ____

   c) Are there any items which, in your judgment, should receive less emphasis? Why?

   ____

   ____

A. Teach more speaking skills

B. Emphasize more organizational skills

C. Teach more job skills

D. Provide greater variety in program's curriculum

E. Teach more math skills

F. Use more resource persons from occupational fields

G. Teach more writing skills

H. Teach more personal relations skills

I. Teach more reading skills

J. Provide more related "on-the-job" experience

K. Other (specify) ______________

____

[M] 3. How would you rate those employees who have gone through specific vocational training programs with those in similar positions who have not done so?	1. Better prepared 2. About the same 3. Don't know	72
[M] 4. In each case, rate the applicant characteristic according to the scale: 1 Very Important 2 Important 3 Less Important (Consider all employees in the clerical, sales, craftsmen, operative, and service worker categories in formulating your response.)	___ Specific job skills competence ___ Good communication skills ___ Good personal relations skills ___ Good attitudes and work habits ___ Experience in similar position	73-77
[M] 5. Which of these factors as listed in #4 above should, in your judgment, be given greater attention in vocational training programs? (Simply circle up to two of the areas as listed.)	1. Specific job skill competence 2. Good communications skills 3. Good personal relations 4. Good attitudes and work habits 5. Work experience 6. No preference	78-79
6. a) Are most of the vocationally trained employees in your firm graduates of a particular institution or type of institution? b) If yes, please indicate the institution or the type of institution ____________________ ____________________	1. Yes 2. No 3. Don't Know	80

7. If your answer to 6 a) was "yes," please indicate your reason (or reasons) for hiring from a particular institution or type of institution ____________________

____

____

8. What advantages, if any, are obtained by hiring graduates of specific vocational training at the community college, voc-tech institute or high school levels?

____

____

9. Does your firm maintain any special programs for the orientation and adjustment of minority and/or disadvantaged workers? ____________________

____

____

☐☐☐

Part III: Work Experience Programs

1. What is your general view toward the development of greater amounts of on-the-job experience as a part of all training programs?	1. Very favorable 2. Favorable 3. Undecided 4. Unfavorable 5. Very unfavorable	5
2. Why do you react this way to increased "on-the-job" emphasis? ______________________________		
3. a) Are there significant barriers to your firm expanding opportunities for on-the-job experience for persons currently in training programs? b) If yes, what are these barriers? ______	1. Yes 2. No 3. Don't Know	6
[M] 4. In what areas, if any, would your firm be willing to take on more job trainees? (Assume present financial arrangements, including a willingness to pay appropriate wages and to provide required insurance and welfare benefits.)	1. Clerical 2. Sales and merchandising 3. Craftsmen 4. Service workers 5. Other ______________________ 6. Would not be willing in any area 7. Don't Know	7-11
[M] 5. How many total additional trainees are represented in your answer to #4 above?	______________	12-14
[M] 6. If outside funding were provided for both trainee salary and benefit costs and the supervision time required by your firm, could this total number of additional trainees be increased? By how much? (Place the number of the increase in the space as provided and do not include those additional trainees already included in #5 above.)	______________	15-17

[M] 7. a) Would the additional trainees as listed under #5 and #6 above be added without replacing regular employees of the firm? b) If "no" or "uncertain," please explain ____________	1. Yes 2. No 3. Uncertain	18

Part IV: General Attitudes Toward Vocational Education

Each of the following relates to the vocational education area. Please respond to each item separately according to the following categories:

SA - Strongly Agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly Disagree

19-33

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Most persons can learn the specifics of the job without going through a special vocational training program.	SA	A	U	D	SD
2. Vocational training programs are necessary as a means of preparing young people for available jobs.	SA	A	U	D	SD
3. Schools get too big when both vocational and academic programs are in one school.	SA	A	U	D	SD
4. Most students go to their counselors to find out about job opportunities.	SA	A	U	D	SD
5. Most counselors can provide useful information on job opportunities.	SA	A	U	D	SD
6. Vocational classes tend to attract lower achievers.	SA	A	U	D	SD
7. Students trained in specific vocational programs are better employees than those not receiving such training.	SA	A	U	D	SD
8. Most teachers of vocational programs have a lower status than teachers of academic classes.	SA	A	U	D	SD

9. Vocational courses are valuable for everyone.	SA	A	U	D	SD
10. Vocational courses have a lower status among students than academic classes.	SA	A	U	D	SD
11. Most counselors know more about colleges than about jobs.	SA	A	U	D	SD
12. Counselors should advise students to take some courses related to a vocation.	SA	A	U	D	SD
13. Students in vocational programs ought to have a school of their own.	SA	A	U	D	SD
14. It is a good idea for students from both vocational and academic programs to be together in one school.	SA	A	U	D	SD

Part V: Additional Comments

Part V: Additional Comments (cont.)

[M] Questions to be asked only of managment and supervisory personnel.

APPENDIX 6B: FIRMS INTERVIEWED IN VOCATIONAL EDUCATION STUDY

FIRMS INTERVIEWED IN VOCATIONAL EDUCATION STUDY

ADVANCE CONSTRUCTION
1218 West Lincoln
Yakima, Washington 98902
Phone: 453-5563
Construction
Int: John Rue

AETNA CASUALTY AND LIFE INSURANCE
Washington Building
Seattle, Washington
Phone: MA 4-6530
Finance
Int: Jim Schumann

ALCOA ALUMINUM
Box 120
Vancouver, Washington
Phone: 693-2581
Manufacturing
Int: Susan Stier

ASSOCIATED GROCERS, INC.
3301 S. Norfolk
Seattle, Washington
Phone: RO 2-2100
Wholesale
Int: Roger Walker

ASSOCIATED SAND & GRAVEL
6300 Glenwood Avenue
Everett, Washington
Phone: 355-2111
Agriculture
Int: Albert Drackert

E. J. BARTELLS CO.
700 Powell Avenue S.W.
Renton, Washington
Phone: 228-4111
Utility
Int: Harold Pelton

BOEING COMPANY
P.O. Box 3707
Seattle, Washington 98124
Phone: 655-2121
Manufacturing
Int: Nick Georvasilis

BREMERTON SUN
545 5th
Bremerton, Washington
Phone: ES 7-3711
Manufacturing
Int: Al Drackert

C.S.L. SAVIDGE INC.
9th and Lenora
Seattle, Washington
Phone: MA 4-8400
Retail
Int: Jim Schumann

CARNATION MILK
University Village
2746 N.E. 45th
Seattle, Washington
Phone: 525-8414
Manufacturing
Int: Harold Pelton

CLOVER PARK SCHOOL DISTRICT
5214 Steilacoom Blvd.
Lakewood Center, Washington 98499
Phone: JU 8-5261
Education
Int: Robert Putnam

THE COEUR D'ALENES COMPANY
Spokane Industrial Park
Building #7
Spokane, Washington 99216
Phone: WA 4-6363
Manufacturing
Int: Greg Saunders

CONNER THEATRES
Winthrop Hotel
Tacoma, Washington
Phone: FU 3-4795
Entertainment
Susan Stier

CRESCENT DEPARTMENT STORE
West 710 Riverside Avenue
Spokane, Washington 99210
Phone: (509) 838-3311
Retail
Int: Greg Saunders

CONSOLIDATED FREIGHTWAYS
6050 E. Marginal Way
Seattle, Washington
Phone: RO 3-1600
Transportation
Int: John Rue

CUDAHY COMPANY
2203 Airport Way
Seattle, Washington
Phone: MA 2-4100
Manufacturing
Int: John Rue

DAVIS WRIGHT TODD REISE & JONES
Seattle First National Bank Bldg.
1001 - 4th Avenue
Seattle, Washington
Finance
Int: Susan Stier

EVANS PRODUCTS
P. O. Box 146
Aberdeen, Washington
Phone: 532-2330
Manufacturing
Int: Robert Putnam

EVELYN WOOD READING DYNAMICS
2619 2nd Avenue
Seattle, Washington
Phone: MA 4-1122
Education
Int: Roger Walker

F.H.A. INSURING OFFICE
1321 2nd Avenue
Arcade Plaza Bldg.
Seattle, Washington 98101
Phone: 442-7665
Public Administration
Int: Nick Georvasilis

FIRST NATIONAL BANK
West 502 Riverside
Spokane, Washington
Phone: 838-2761
Finance
Int: Greg Saunders

FREDERICK AND NELSON
5th and Pine
Seattle, Washington
Phone: MU 2-5500
Retail
Int: Jim Schumann

HAZEN & JAEGER FUNERAL PARLOR
N. 1306 Monroe
Spokane, Washington
Phone: (509) FA 7-6666
Personal
Int: Greg Saunders

IBM
1200-5th
Seattle, Washington 98101
Phone: 587-4400
Wholesale
Int: Jim Schumann

JENSEN BYRD
314 West Riverside
Spokane, Washington
Phone: (509) 624-1321
Wholesale
Int: Greg Saunders

LOCKHEED
2929 -16th S.W.
Seattle, Washington
Phone: MA 3-2072
Manufacturing
Int: John Rue

MARYSVILLE SCHOOL DISTRICT
1513 Seventh Street
Marysville, Washington 98270
Phone: 659-6261
Education
Int: Al Drackert

NORDSTROM VILLAGE, INC.
800 Tacoma Mall
Tacoma, Washington 98409
Phone: GR 5-3630
Retail
Int: Roger Walker

MASON CLINIC
1118 - 9th
Seattle, Washington 98101
Phone: MA 3-3700
Health
Int: Harriet Jaquett

NORTHWEST AREA EXCHANGE
PX Central Offices
Fort Lewis
Tacoma, Washington 98433
Phone: 967-2571
Public Administration
Int: Nick Georvasilis

OVERALL LAUNDRY SERVICE
220 Yale N.
Seattle, Washington
Phone: MU 2-6666
Personal
Int: Roger Walker

PACIFIC CAR & FOUNDRY
80 S. Hudson
Seattle, Washington

RO 2-7440
Manufacturing
Int: John Rue

PACIFIC N.W. BELL
620 Sprague
Spokane, Washington
Phone: (509) 455-2440
Transportation
Int: Greg Saunders

PETERSON SCHOOL OF BUSINESS
1905 - 3rd
Seattle, Washington 98101
Phone: MU 2-7930
Education
Int: Roger Walker

PIERCE COUNTY MEDICAL
1114 Broadway
Tacoma, Washington
Phone: MA 7-2121
Finance
Robert Putnam

THE POLYNESIAN
Pier 51
Seattle, Washington
Phone: MA 4-6995
Retail
Jim Schumann

POPE AND TALBOT, INC.
Port Gamble, Washington 98364
Phone: 297-3341
Manufacturing
Int: Al Drackert

PUGET SOUND POWER AND LIGHT
10608 N.E. 4th
Bellevue, Washington
Phone: GL 4-6363
Int: Harriett Jaquette

SACRED HEART HOSPITAL
W. 101 - 8th Avenue
Spokane, Washington 99204
Phone: (509) 455-3040
Health
Int: Greg Saunders

SAFEWAY
Box 947
Bellevue, Washington 98009
Phone: GL 4-5011
Retail
Int: Harold Pelton

SAND POINT COUNTRY CLUB
8333 - 55th N.E.
Seattle, Washington
Phone: LA 5-5766
Entertainment
Int: Jim Schumann

SEARS ROEBUCK
200 S. Sound Center
Olympia, Washington
Phone: 491-4000
Retail
Int: Robert Putnam

SNOHOMISH COUNTY MENTAL HEALTH CENTER
Box 2332
Everett, Washington 98203
Phone: 258-4521
Health
Al Drackert

SPOKANE SCHOOL DISTRICT
W. 825 Trent
Spokane, Washington
Phone: (509) 455-5242
Education
Int: Greg Saunders

STATE DEPARTMENT OF HIGHWAYS
Olympia, Washington
Phone: 753-6005
Public Administration
Int: Robert Putnam

TAM ENGINEERING
3303 S. Lawrence
Tacoma, Washington
Phone: FU 3-1684
Manufacturing
Int: Howard Johnson

UNIROYAL
829 Commerce
Longview, Washington
Phone: 425-3933
Business & Repair Services
Int: Susan Stier

UNITED WAY OF KING COUNTY
107 Cherry
Seattle, Washington 98104
Phone: MU 2-8161
Welfare
Int: Jim Schumann

VANGUARD EXPLORATION
W. 624 Hastings
Spokane, Washington 99208
Phone: (509) 326-5000
Agriculture
Int: Greg Saunders

VINELL-DRAVO--LOCKHEED-MANNIX
S.E. Cedar and Roosevelt Way
Coulee Dam, Washington
Phone: 633-2800
Construction
Int: John Rue

VILLA
805 Front Street S.
Issaquah, Washington 98027
Phone: EX 2-7583
Health
Int: Al Drackert

VIP'S RESTAURANT
Rt. 1
Richfield, Washington
Phone: 887-8201
Retail
Int: Susan Stier

WALSH PLATT MOTORS
2902 Rucker
Everett, Washington
Phone: 252-2157
Retail
Int: Al Drackert

WARREN LITTLE & LUND
W. 120 - 2nd
Spokane, Washington 99204
Phone: (509) RL 7-6051
Construction
Int: Greg Saunders

WASHINGTON NATURAL GAS
S. 38
Tacoma, Washington
Phone: GR 5-6700
Utility
Int: Harold Pelton

WESTERN CLINIC
512 South K Street
Tacoma, Washington 98405
Phone: MA 7-9151
Health
Int: Nick Georvasilis

WESTINGHOUSE
19 W. Harrison
Seattle, Washington
Phone: MA 3-7001
Business & Repair Service
Int: Al Drackert

WEYERHAUSER
P. O. Box 188
Longview, Washington
Phone: 425-2150
Manufacturing
Int: Susan Stier

WEYERHAUSER
2525 S. 336th
Federal Way, Washington
Phone: 924-2345
Manufacturing
Int: Nick Georvasilis

WHITNEY FIDALGO
2360 W. Commodore Way
Seattle, Washington
Phone: 285-0300
Int: Jim Schumann

WOLFE, SKILLING, HELLE, CHRISTIANSON,
ROBERTSON
1325 4th Avenue
Seattle, Washington
Phone: MA 3-7222
Legal
Int: Harold Pelton

YELLOW CABS
1220 Republican
Seattle, Washington
Phone: MA 2-7395
Transportation
Int: Harold Pelton

AMERICAN BUILDING MAINTENANCE
N. 112 Altamont
Spokane, Washington
Phone: (509) 535-2022
Business
Int: Greg Saunders

WESTERN AIRLINES
1339 4th Avenue
Seattle, Washington
Phone: 246-7600
Transportation
Int: Nicholas Georvasilis

APPENDIX 6C: SUMMARY OF RESPONSES TO INDIVIDUAL QUESTIONS ON GENERAL ATTITUDES

SUMMARY OF RESPONSES TO INDIVIDUAL QUESTIONS ON GENERAL ATTITUDES[a]

Item		Central Management	Line Supervisors	Non-supervising Employees	Total
1. Most persons can learn the specifics of the job without going through a special vocational training program.	M S	2.95 1.08	2.64 1.13	2.56 1.04	2.72 1.10
2. Vocational training programs are necessary as a means of preparing young people for available jobs.	M S	2.41 1.03	2.12 .85	1.95 .87	2.16 .94
3. Schools get too big when both vocational and academic programs are in one school.	M S	3.29 .97	3.39 .97	3.21 1.17	3.30 1.04
4. Most students go to their counselors to find out about job opportunities.	M S	3.05 .91	2.94 .90	3.00 1.11	2.99 .97
5. Most counselors can provide useful information on job opportunities.	M S	3.07 1.02	2.82 .97	2.79 1.08	2.89 1.03
6. Vocational classes tend to attract low achievers.	M S	3.29 .97	3.47 .98	3.53 1.04	3.43 1.00
7. Students trained in specific vocational programs are better employees than those not receiving such training.	M S	2.37 .90	2.22 .97	2.53 .98	2.36 .95
8. Most teachers of vocational programs have a lower status than teachers of academic classes.	M S	3.50 .95	3.42 1.84	3.81 .93	3.56 .92
9. Vocational courses are valuable for everyone.	M S	2.61 1.07	2.29 .99	2.39 1.00	2.43 1.03

APPENDIX 6C

(Continued)

Item		Central Management	Line Supervisors	Non-supervising Employees	Total
10. Vocational courses have a lower status among students than academic classes.	M	2.84	3.14	3.21	3.06
	S	1.01	.89	1.21	1.05
11. Most counselors know more about colleges than about jobs.	M	2.28	2.51	2.47	2.42
	S	.83	.81	1.06	.91
12. Counselors should advise students to take some courses related to a vocation.	M	1.98	2.09	1.98	2.02
	S	.85	.82	.85	.84
13. Students in vocational programs ought to have a school of their own.	M	3.21	3.34	3.00	3.19
	S	.93	1.01	1.04	1.00
14. It is a good idea for students from both vocational and academic programs to be together in one school.	M	2.57	2.34	2.68	2.52
	S	.84	.83	.99	.90

[a] The mean (M) and standard deviation (S) scores as recorded here are based upon responses of the 189 employer representatives. The interview guide used in recording responses is in Appendix 6A.

CHAPTER 7

STAFF AND FACILITY REQUIREMENTS FOR VOCATIONAL EDUCATION

A part of the SCR-23 study and analysis plan of Appendix 1C deals with staffing and facility requirements for the next few years. While time and resources prevented any major assessment of needs in these two areas, the SCR-23 Steering Committee did request information from key state agencies on both subjects and has summarized that information in succeeding sections of this chapter. Since an in-depth analysis in these areas was not possible within the context of SCR-23, the intent here is primarily one of informing the reader about present practice and conditions in the State of Washington.

Staffing Needs and the Certification Process

At the present time, there are approximately 1800 certificates granted to vocational teachers in secondary schools throughout the State. An exact count of certificates at other levels is not available due to the fact that most institutions at the post-secondary level certify their own personnel. The distribution by occupational area for all vocational staff as reported by the Professional Services Division of CCOE is summarized in Table 7.1a. In addition to the areas covered in this Table, the State also certifies vocational counselors; however, since no financial advantage to either the certificate holder or the school accompanies this counselor certificate, few qualified counselors have actually taken steps to become so certified.

Certification requirements are somewhat different for each of the subjects covered in Table 7.1a. Most certificates require some work experience in the general area to be taught and one, three and five year certificates are available in most areas. The community colleges do not certify teachers at the state level but expect each college to certify its own personnel, using state requirements as a guideline.

TABLE 7.1a

CERTIFICATED VOCATIONAL TEACHERS BY SUBJECT AREA[a]

Occupational Area	Number of Certificate Holders		
	Secondary Schools	Post Secondary[b]	Adult[c]
Agriculture	172	53	65
Distributive Education	107	109	122
Health	15	317	193
Homemaking (Useful)	560	109	69
Home Economics (Gainful)	58	32	128
Business & Office	689	361	132
Technical	-	157	274
Trade and Industry	153	613	2,410
Diversified Occupations	15	-	-

[a] Data obtained from CCOE.

[b] This column includes both vocational-technical institutes and preparatory community college instructors. There is no way to guarantee the number who actually hold certificates because the certification at the community college level is not controlled by CCOE.

[c] This column includes all supplementary programs at the community college level and again no definite guarantee as to certificates can be made.

While the numbers of additional certified personnel required to meet the enrollments as projected in Chapter 5 are substantial, it is not anticipated that any critical shortage of qualified personnel will exist in the immediate future. According to Archie G. Breslin, Director of the Professional Services Division of the Washington State Coordinating Council for Occupational Education, few vocational programs have actually been lost because of an inability to fill the teaching position with a person meeting certification standards. In a recent memorandum, Mr. Breslin said:

> "I am not aware of a single program that has been planned with due consideration given to such basics as early advisory committee involvement, the establishment of need, extensive recruitment of instruction, candidates, etc., that has failed to materialize because of requirements of the certification of the instructor were too stringent."

While the certification requirements seem to be generally adequate at the present time, it is likely that the requirements will have to be more flexibly interpreted as the definition of vocational program itself is adapted to our dynamic and changing world of work. Such change in definition has already come about as a result of the Vocational Amendments of 1968; and, as more and more diversity of occupational programs becomes a reality in our various schools, the definitions associated with the certification process must be continually reviewed.

Facility Requirements in Vocational Education

Each of the major delivery systems for vocational education assesses its own facility requirements. In the case of the common schools, this type of planning is most often carried out at the local school district level and very little information is therefore available on a state level for the common schools.

The 1973-75 biennium budget request for vocational-technical facilities is presented in Table 7.2a. The largest single request is from Lake Washington which is in the process of major program expansion. It should be remembered that these figures in Table 7.2a are simply requests at this point and will likely not become (at least in their present form) a part of any formal budget request from the Superintendent of Public Instruction. This is particularly true if enrollments in vocational-technical institutes continue at the level observed for the past few years.

In Table 7.2b, we see a listing of additional student stations as prepared by the State Board of Community College Education. It is estimated that each student station as listed in this table will generate approximately 1 1/2 FTE's in student enrollment. In other words, the 185 additional lab student stations as requested by Olympic Community College will accommodate approximately 278 (1.5 times 188) additional students in vocational programs. The 7,599 total student stations represents an increased capacity of approximately 11,500 students by the fall of 1976. This is slightly less than the anticipated increase in enrollments; however, the planned expansion of on-the-job experience as a key component of several vocational programs should, along with the facility requests of Table 7.2b assure more than adequate space for vocational enrollees.

As for accessibility of vocational programs across the state, the community college system has its facilities located in such a way that over 90 percent of the state's population is within commuting time of a comprehensive educational program. In almost all cases, this comprehensive program includes a wide variety of vocational offerings; hence, the State Board of Community College Education sees no immediate need for the relocation of present facilities.

TABLE 7.2a

PRESENT FACILITY SPACE AND FUTURE REQUEST IN VOCATIONAL-TECHNICAL INSTITUTES[a]

School	Present Area In Square Feet	Area Request, 1973-75 (in Square Feet)
Bellingham	74,285	9,775
Clover Park	150,290	125,000
Tacoma (Bates)	297,989	60,000
Lake Washington	16,839	190,000
Renton	70,925	36,300
TOTAL	610,328	421,075

[a] Figures obtained from Norman Westling, Director, School Facilities Organization, SPI

TABLE 7.2b

VOCATIONAL FACILITY NEEDS IN THE COMMUNITY COLLEGES[a]

District of College	Additional Laboratory Student Stations	
	Funded But Not Yet in Use	Needed by Fall, 1976 But Not Yet Funded
Peninsula	---	---
Grays Harbor	150	---
Olympic	---	185
Skagit Valley	---	---
Edmonds	60	212
Everett	---	117
North Seattle	---	705
Seattle Central	---	---
South Seattle	---	533
Shoreline	220	87
Bellevue	100	474
Highline	---	846
Green River	60	280
Ft. Steilacoom	80	415
Centralia	---	6
O.V.T.I.	60	416
Lower Columbia	---	98
Clark	---	310
Wenatchee Valley	100	---
Yakima Valley	90	515
Spokane (M)	---	1,191
Spokane Falls	---	659
Big Bend	---	---
Columbia Basin	150	---
Walla Walla	28	286
Whatcom	---	---
Tacoma	---	264
STATE TOTAL	1,098	7,599

[a] Figures obtained from State Board of Community College Education cover only vocational laboratory spaces and not the supporting classrooms and ancillary spaces.

CHAPTER 8

PROGRAM EVALUATION AND FOLLOW-UP EFFORTS

One of the major problems facing the SCR-23 study staff in its efforts to collect reliable information on present programs and their effectiveness can be attributed to the limited amount of information which is currently collected on vocational students and graduates. Furthermore, the information which is collected is often not handled in a similar manner in the various institutions delivering vocational services in the State of Washington. The problem with duplicated enrollment counts as mentioned in Chapter 5 is but one example of this continuing problem with data collection and reliability. Succeeding sections of this Chapter discuss the general problems of evaluation and data collection as related to vocational programs and present at least tentative suggestions for resolving these concerns.

Recent Efforts to Develop Systems of Data Collection and Evaluation

For some years, the Coordinating Council for Occupational Education and the Office of the Superintendent of Public Instruction cooperated in a statewide follow-up program designed to obtain placement information on recent graduates. This particular system was abandoned during the 1971-72 school year and efforts are currently being made to develop an alternative plan which would permit much greater local control over the follow-up system. This plan is currently being developed by the Renton School District under a special research grant from the Coordinating Council for Occupational Education. While it is perhaps too early to predict the exact nature of the follow-up system being developed through the Renton Project, it is hoped that this system will provide considerable flexibility for individual districts and yet provide a systematic data base for state and federal efforts in evaluation. It is also recommended that the overall follow-up system include questions relating to the quality of programs as well as the job placement experience of recent graduates. While it is primarily this latter information on placement experience which is required by federal and state reports, the views of graduates toward the quality of their preparation and the degree to which that preparation provided a smooth transition to the working world seems to be of at least equal importance to the success in initial placement. It would also be advantageous to obtain (on at least an occasional basis) information regarding the long-range placement experience of vocational graduates and the views of employers toward the competency of those same graduates. This more comprehensive type of follow-up effort would undoubtedly require some additional funding source but would be extremely useful as a base of program information on vocational education.

At the present time and until a model follow-up system is developed, the Vocational Education Department of the Office of the Superintendent of Public Instruction is simply asking individual school districts throughout the state to provide the information outlined on Form P-377. (This form is found on the following page.) It is evident that completion of this particular form will require a systematic follow-up of all vocational enrollees in their first year following graduation and it would seem advantageous to obtain information on both initial placement experience and student assessment of program quality as a single follow-up effort.

Such a comprehensive follow-up system incorporating both placement and quality assessment factors has been designed during the past year at the community college level. Under the direction of Mr. Kellis A. Hamilton of Centralia Community College, a comprehensive follow-up survey was piloted at Centralia and Seattle Central Community Colleges. The survey instrument used in this pilot effort has been included in Appendix 8A of this report. The questionnaire incorporates questions about job placement, continuing education

STATE OF WASHINGTON

Form P-377(5 72

SUPERINTENDENT OF PUBLIC INSTRUCTION

OCATIONAL EDUCATION DEPARTMENT OLD CAPITOL BUILDING, OLYMPIA, WA. 98504

COMPLETIONS IN VOCATIONAL EDUCATION

Date .... School Year 1971-72

unty .... No. ....

strict .... No. ....

hool .... No. ....

Signed ....
(Superintendent or other designated official)

PLEASE READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING

	PROGRAMS							
	AGRICULTURE	DISTRIBUTIVE EDUCATION	HEALTH OCCUPATIONS	HOME ECONOMICS (GAINFUL)	BUSINESS & OFFICE	TECHNICAL (VOC. TECH. ONLY)	TRADE and INDUSTRY	DIVERSIFIED OCCUPATIONS
1. Number of completions								
2. Left prior to normal completion time with marketable skills								
3. Number of status unknown								
4. Number known in active military service								
5. Number known continuing school full time a) Vocational Technical								
b) Community College								
c) 4 Year College								
d) Other								
6. Other reasons not available for employment								
7. Number known to be employed full time in occupation trained for or related occup.								
8. Number known to be employed full time in other occupation								
9. Number known to be employed part time (exclude those continuing school)								
10. Number known to be unemployed								
TOTAL								

FORM P-377
INSTRUCTIONS

The purpose of Form P-377 is to report the status of former students for each program area. The instructions for completion of the form are:

1. Number of Completions--Report the number of students that completed the requirements for each program. Report a student only once in any program.

2. Left Prior to Normal Completion Time with Marketable Skills--Report the number of students that left prior to completion time with marketable skills. A person does not have marketable skills unless he is employed full time in the occupation for which trained, or in a related occupation.

3. Number of Status Unknown--Self-explanatory

4. Number Known in Active Military Service--Self-explanatory

5. Number Known to be Continuing School Full Time--Report, opposite the appropriate levels, the number of completions that are continuing school full time.

6. Not Available for Employment for Other Reasons--Report the number of completions that were not available for employment other than questions 3 through 5.

7. Number Known to be Employed Full Time in Occupation Trained or in Related Occupations--Report those completions employed full time in the occupations for which trained or in occupations related to their training. Those that left prior to normal completion time but with marketable skills (question 2) should also be included.

8. Number Known to be Employed Full Time in Other Occupations--Report those completions that became employed in an occupation not related to their training.

9. Number Known to be Employed Part Time--Report those completions employed part time. Exclude those reported in questions 3 thru 8.

10. Number Known to be Unemployed--Report those completions that are unemployed but seeking work.

11. TOTAL--Add answers 3 through 10 for each column. This total should equal the total of questions 1 and 2.

salary level, and program evaluation. While the rate of response during the pilot testing of this follow-up system was only 30 percent, it is hoped that this response rate can be improved with the development of greater institutional and instructor support. If vocational instructors stress with their present students the importance of these graduate follow-up surveys, it is expected that more of the graduates will take time to supply the requested information. Difficulties in locating graduates and the tendency of people generally not to bother with mailed questionnaires are admittedly substantial problems to be resolved in developing any kind of a systematic follow-up effort; however, this instructor encouragement can undoubtly go a long way in achieving a greater return of information.

Personnel involved in piloting the follow-up at the community college level estimate that its implementation will require an additional cost of between $1.50 and $2.00 per student. This cost might be even higher if a greater effort is made to follow-up on non-respondents. Mr. Richard Moe, Education Program Director for the State Board of Community College Education, provides a word of encouragement to those desiring more extensive follow-up effort by indicating that all Community Colleges in the State will begin in 1971-72 a follow-up system similar to that used at Seattle Central and Centralia Community Colleges this past year.

It would, of course, be helpful if common questions could be used in a follow-up system for all three of the major delivery systems--Community Colleges, Vocational-Technical Institutes, and common schools. Increased efforts should be made to implement an overall system which does incorporate common questions at all levels and yet permits both levels and institutions to add questions designed to obtain information unique to their own situations.

Problems and Concerns with Evaluation

Recently, the U.S. Office of Education has undertaken a major comparative study of vocational education enrollments in the various states. As part of this effort known as Project Baseline, they have attempted to collect comparable enrollment information from each of the 50 states. The problems in obtaining reliable data just on present enrollments are summarized in the following statement made by the Project Baseline staff:

> "In spite of efforts to standardize reporting procedures, wide variations have come to exist in the manner in which original data are recorded, transmitted, and assembled at every level from local schools and training institutions to Federal agencies. Substantial over-reporting in some cases, and even more extensive under-reporting in other cases, are evident."[1]

This same scarcity of reliable data led the American Vocational Advisory Council on Vocational Education to describe the situation as "a multi-billion dollar, space-age enterprise directed by intuition."[2]

We see from these observations that problems with systematic data collection are not at all unique to Washington State. Other states are also struggling with this problem and most recognize that any real solution will require cooperation of several agencies and agency levels and some additional financial investment for the evaluation function. More specifically, it seems that improvements in evaluation are dependent upon the following factors:

1) Some agreement must first be obtained regarding the questions to be answered in the evaluation effort. Merely collecting data because it can be easily obtained or waiting until after the normal collection period to suddenly decide something should have been collected to answer a particular question makes very little sense. Some kind of a data collection system based upon established questions or hypotheses

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[1] "Project Baseline," Northern Arizona University, p. 2

[2] *Ibid*. p. 2

is preferable to the more scattered approach which seems to have developed in past years.

2) Having decided on a particular series of data collection efforts designed to obtain answers to important questions and/or to satisfy certain Federal regulations, the cost and procedures to be used in the data collection should be carefully charted. Only by charting the exact procedure to be used and the estimated cost can one make a reasoned decision on whether particular data should be collected at all. Special attention in making this assessment should be given to the reliability of the data source to be used: it is sometimes appropriate to build reliability checks into the data collection procedure. If such checks raise serious questions regarding reliability, it may be preferable to collect a lesser amount of data at less frequent intervals. As an example, rather than collecting information on employer satisfaction with vocational programs from all employers each year, it may make much more sense to collect such information from a select group of employers every second or third year. It is at least true that such a periodic and limited assessment could be accomplished at a much lower cost than the comprehensive annual data collection effort. It is also likely that this less extensive plan would provide answers to most of the key questions raised both by vocational educators and by legislative and governmental leaders.

3) This concern with the reliability of various data sources also leads to a caution regarding any comparisons which might be made both between and within the various vocational education delivery systems. To the extent possible, data in each of the systems should be accumulated in a reasonably comparable manner, thereby permitting reasonable comparisons. At the present time, differences in the procedures of data collection and, even more important, problems with duplicating enrollments in programs (for those students taking more than one vocational course) make valid comparisons virtually impossible. While some information is generally viewed as being better than nothing at all, it is extremely dangerous to make key decisions based upon questionable data sources.

At any rate, a continuing effort should be made at the state level to implement a system which minimizes these problems associated with comparison of data from the various delivery systems.

4) Resolution of the data reliability problem as outlined above will obviously require a greater financial commitment to the overall data collection and evaluation effort. Unless vocational leaders and legislators are willing to fund an extensive and reliable system of evaluation, we must be content to live with our present problems. Whether we are talking about an occasional and extensive study of the type of SCR-23 or a continuing systematic data collection effort, the cost will be subtantial. Certainly the estimated $40,000 spent in implementing SCR-23 is not nearly sufficient to accomplish a comprehensive evaluation of the type outlined in Appendix 1C of this report. It is estimated that an adequate data collection effort designed to answer most of the questions outlined in that particular study and analysis plan would cost at least $200,000. An inability to commit that kind of funding level to the implementation of SCR-23 was a primary factor in its inability to answer many of the questions originally raised by the legislature and its various committees.

Having raised a number of questions and concerns regarding the evaluation process, it might be well to express the hope that efforts will be made to develop, both at the state level and in the various local delivery systems, a more comprehensive plan for data collection and evaluation. In this age of accountability, it seems inconceivable that we do not even attempt to assess, at least periodically, the viewpoints of various client groups involved in our occupational programs. Students, parents, employers and teachers each have an important contribution to make in evaluating both the program offerings and the quality of instruction throughout the State. Only by including their feelings and perceptions will we be able to move forward in a responsible and constructive manner.

APPENDIX 8A: A FOLLOW-UP SURVEY OF FORMER STUDENTS

A FOLLOW-UP SURVEY OF FORMER STUDENTS

Student Program Identification

161123009300001 7307

WHITE ERNEST J
RT 3 BOX 436
CHEHALIS WA 98532

NAME____________________________
STREET____________________________
CITY____________________________
STATE________________ ZIP________
SOCIAL SECURITY NO.________________

NOTE: Please make any necessary corrections on the above lines.

TIONS: *When asked to "check" a box, please use an "X" type check mark. The questions pertain to the college and program printed on the identification label. A program, in this questionnaire, is the course of study, major, or occupational area you followed in the college. Your responses are important whether you attended part time, full time, day or night.*

re you on active duty in the Armed Forces?
6 ( ) Yes
( ) No

lave you sought employment for which you ere trained or educated?
( ) Yes
( ) No

re you presently employed:
( ) Full Time
( ) Part Time
( ) Not Employed

IOTE: If NOT EMPLOYED please go to question 16.

re you employed in the area for which our program was designed?
( ) Yes
( ) No, but in a related area
( ) No, in a completely different area

o you believe you were hired because ou participated in this program?
( ) Yes
( ) No
16 ( ) Some influence

6. If employed in an occupation OTHER than what your program was designed for, was it because:
19 ( ) my training convinced me I wouldn't like that field
( ) I found no job opening in my field
( ) the pay is better in my present job
( ) I entered employment in my field and changed
( ) other ________________________

7. Was this program important to your success on your first job after leaving this program?
( ) Yes
( ) No

8. Were you employed in your present line of work BEFORE entering this program?
( ) Yes
( ) No
If YES:
( ) did your training lead to a better job
( ) a higher salary
( ) securing your present position
31 ( ) other ________________________

The small numbers appearing at the left of the answer boxes are for College use in compiling the questionnaire data.

9. What was your total MONTHLY salary on your first job after attending this college:

Beginning salary:
32 ( ) Below $300
( ) $300-$399
( ) $400-$499
( ) $500-$599
( ) $600-$700
( ) above $700

Starting Employment Date:

38 Month ________
40 Year ________

Present salary:
42 ( ) Below $300
( ) $300-$399
( ) $400-$499
( ) $500-$599
( ) $600-$700
( ) above $700

10. What is your present job title as listed by your employer?
101 ____________________

11. Are you self-employed?
( ) Yes
( ) No

12. As a result of your WORK EXPERIENCE, what additional courses or skills would improve this program?
121 ____________________
____

13. As a result of your WORK EXPERIENCE. what courses or training activities would you recommend be dropped?
131 ____________________
____
____

14. Were you assisted in getting your first job after leaving by any of the following?
( ) by faculty
( ) by college placement office
( ) by acquaintance
( ) by Employment Security
( ) by Advisory Committee
( ) wasn't looking for a job
( ) other ____________
57 ( ) was not assisted

15. If you are working in the occupation you were trained for, would you recommend this program to others?
58 ( ) Yes
( ) No

For what reasons? ____________
151 ____________________

16. Have you continued your education after leaving this college?
( ) Yes
( ) No
(If NO, continue below dotted line)
If YES:
( ) Full Time
( ) Part Time
Did you attend a:
( ) 2-year college
( ) 4-year college
( ) voc-tech institute
( ) business college
( ) other ____________
Did you complete the above education?
( ) Yes
( ) No

Are you planning to continue your education?
( ) Yes
( ) No

If YES, are you planning to attend:
( ) 2-year college
( ) 4-year college
( ) voc-tech institute
( ) business college
( ) other ____________

17. If you have continued your education, did your program here play an important part in your education after leaving this college?
( ) Yes
79 ( ) No

Comment: ____________
171 ____________________

18. If you have continued your education, do you still have the same major field of study or program?
6 ( ) Yes
( ) No
8 ( ) Other ____________

As a result of your EDUCATION AFTER LEAVING this college (a) what COURSES should be added to the program you were in? ____________________

____

____

(b) what COURSES or ACTIVITIES should be dropped? ____________________

____

____

Would you recommend this program to others?

9 ( ) Yes
( ) No

Please give us your reasons:

____

____

____

Was your first choice of a major or program offered at this college?

( ) Yes
( ) No

If NO, what major area of study would have been your choice? ____________________

____

Were your courses helpful in a way other than in transferring to a 4-year college or working at your job?

( ) Yes
( ) No

If YES, (a) what courses were most helpful? ____________________

____

(b) the least helpful to you?

____

____

What college services did you use while attending this school?

( ) Counseling
( ) Advising
( ) Library (learning resources center)
( ) Other ____________________

Who helped you most to decide what programs or courses to take?

( ) Instructor
( ) Counselor
( ) Adviser
( ) Fellow Student
23 ( ) Other ____________________

25. How could student services be improved? 251

____

____

____

26. Were you encouraged by college personnel to use the library (or learning resources center)?

24 ( ) Yes
( ) No

27. How often did you use the library (or learning resources center) facilities and services? Please estimate.

( ) daily
( ) weekly
( ) monthly
( ) once a quarter

28. What were the most helpful services the library (learning resources center) offered you?

( ) books
( ) tapes
( ) copy machine
( ) study carrels
( ) microfilm
35 ( ) other ____________________

29. What other services should the library (or learning resources center) offer? 291

____

____

____

30. In which CLASSES did you feel you learned the most? ____________________ 301

____

____

31. In what WAYS did the instructors in those classes encourage you to learn? 311

____

____

____

32. Which CLASSES did you enjoy the most? 321

____

____

____

3. If you became involved in your COMMUNITY (either volunteer or for pay) as a result of your program, check the appropriate ways:

36 ( ) political activities
( ) recreational activities
( ) cultural events
( ) learning or teaching activities
( ) special projects (such as clean-ups, paint-ups, charities)
( ) work experience
( ) other ____________________
( ) none

Did you receive college credit for any of the above?

( ) Yes
45 ( ) No

4. What school activities caused you to
341 become involved? ____________________

5. In what community activities could students be helpful to the community
351 and themselves? ____________________

36. Did you participate in any decisions that affected college policy?

46 ( ) Yes

If YES, how were you involved?

( ) signed a petition
( ) attended one or more meetings on the subject
( ) actively campaigned for a point of view
( ) promoted and gave leadership to a cause
( ) voted
( ) other ____________________

( ) No

If NO, was it because you

( ) chose not to
( ) because there were so few chances for a student to influence major decisions
56 ( ) other ____________________

Make any additional comments below and on the back of this page. Please send the completed questionnaire back to us in the enclosed self-addressed postage paid envelope. Thank you for your time in helping us to evaluate the programs you have taken at the College.

CHAPTER 9

VOCATIONAL FUNDING

Coincident with SCR-23, the Legislature passed two additional resolutions specifically dealing with funding and cost analysis of vocational programs. SCR-2 mandated a study of vocational program costs and distribution mechanisms in secondary schools and vocational-technical institutes. SCR-3 was a similar resolution applying to the State's community colleges.

Vocational funding and allocation mechanisms are specifically mentioned in SCR-23. Early in the planning stage the SCR-23 Steering Committee decided not to duplicate the studies outlined in SCR-2 and SCR-3. The Committee planned that the Advisory Council was to refer to both studies in SCR-23 with comment on acceptance or rejection of recommendations arising from both resolutions.

SCR-2

The purpose of SCR-2 as stated in the resolution is to "...include a detailed analysis of the cost of vocational programs which are here defined as a single course or a series of related courses offered concurrently or over a designated span of time that constitute a total educational effort in preparing students for a specific occupation, among all of the local school districts currently offering vocational classes; ..." and to "...undertake a study to determine the feasibility of the use of a single comprehensive unified distribution mechanism for federal and state funds made available to the common schools; ..."

The Office of the Superintendent of Public Instruction, with the assistance of a steering committee of affected state agencies and a broader based advisory committee, presented an excellent analysis in their preliminary report dated September 7, 1972. The recommendations contained in the SCR-2 report are listed in Appendix 9A.

SCR-23

The purpose of SCR-3 from the language of the resolution is to "...determine the feasibility of the use of a comprehensive unified distribution mechanism for federal and state funds made available to community colleges;..." and to "...determine the costs of the various educational programs conducted by the individual community college including vocational programs which are defined as a single course or a series of related courses offered concurrently or over a span of time that constitute a total educational effort in preparing students for a specific occupation;..."

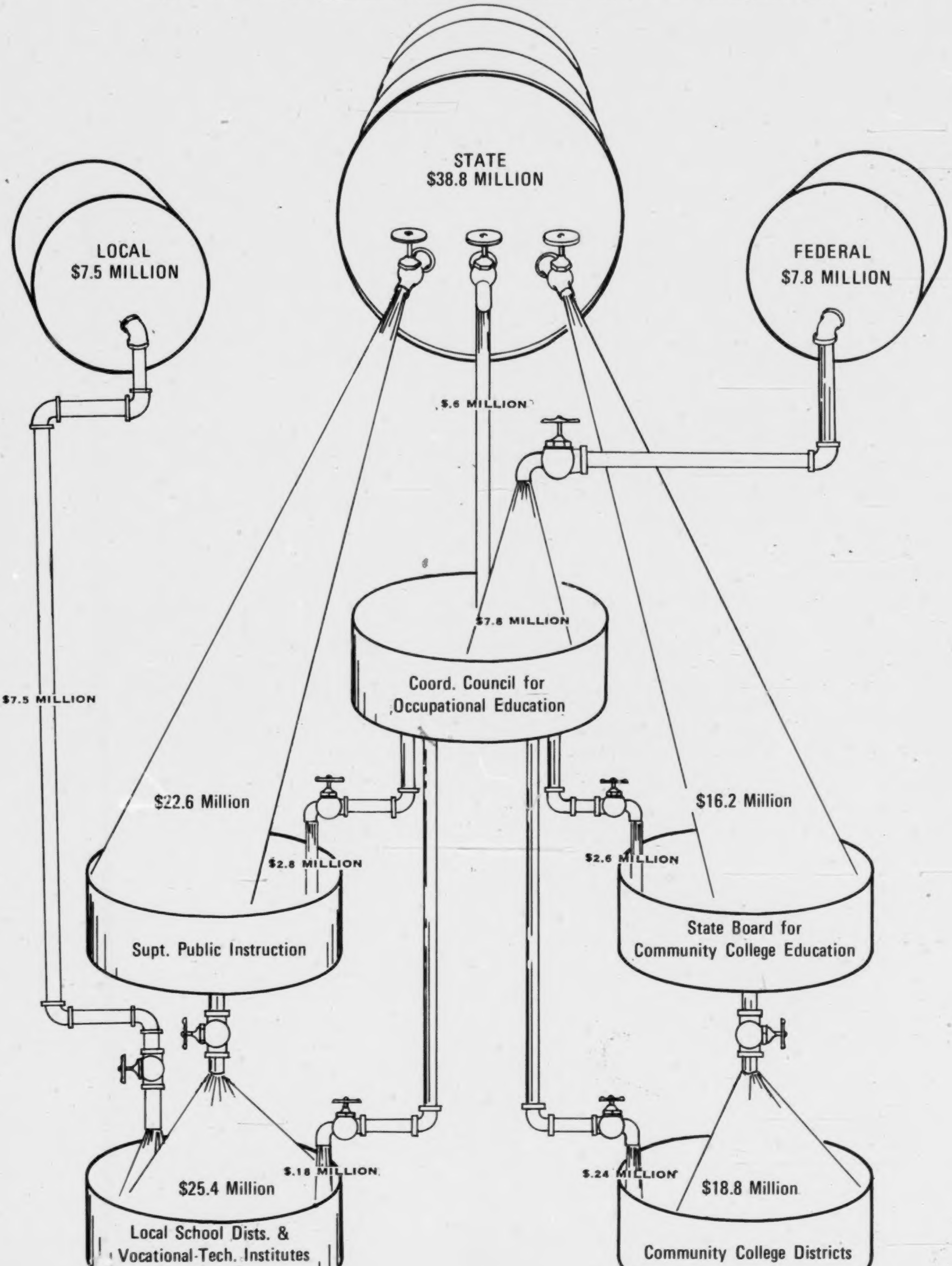
At the time this report was reproduced, the report on SCR-3 was unavailable. However, the Advisory Council has had the opportunity to review the community college enrollment and instructional cost analysis which we understand will be a part of the final SCR-3 report. This appears to be a worthwhile analysis of vocational program costs compared to academic.

Funding Flow

The source and flow of vocational funding is illustrated in Chart 9.1. The purpose of the chart is to reduce the complexity of vocational funding to a graph depiction of money flow from the source to the local school districts, vocational-technical institutes and community college districts. The amounts are rounded figures from the 1971-72 school year, except for the 1970-71 community college appropriation.

The amount listed under local funding and state funding for common schools in total is correct, but the split-out is based upon .2 money only. It appears to be impossible to accurately split local from state funds because of the equalization formula and the manner in which associated records are kept in the Office of the Superintendent of Public Instruction.

CHART 9.1: FLOW OF VOCATIONAL FUNDING - STATE OF WASHINGTON


STATE
$38.8 MILLION
LOCAL
$7.5 MILLION
FEDERAL
$7.8 MILLION
$.6 MILLION
$7.8 MILLION
Coord. Council for
Occupational Education
$7.5 MILLION
$22.6 Million
$2.8 MILLION
Supt. Public Instruction
$16.2 Million
$2.6 MILLION
State Board for
Community College Education
$.18 MILLION
$25.4 Million
Local School Dists. &
Vocational-Tech. Institutes
$.24 MILLION
$18.8 Million
Community College Districts

See notes on next page

NOTES TO CHART 9.1

1. The source of all data was the Coordinating Council for Occupational Education.

2. The figures are from fiscal year 1972 results.

3. The main purpose of the chart is to depict sources and flow of vocational education funding. Although the dollar amounts cited are FY 1972 actual, they have been rounded for clarity. Due to this fact and note 4. below, the data depicted are subject to some correction.

4. The total state and local dollars reported as going to local school districts and vocational-technical institutes was $30.1 million. This amount was divided into $22.6 million state and $7.5 million local to depict the local funding source. Without extensive data analysis, it was impossible to show an actual amount for local. The $7.5 million is an estimate based upon general analysis of the common school distribution formula and actual breakdown from vocational-technical institutes.

APPENDIX 9A: RECOMMENDATIONS FROM SCR-2

RECOMMENDATIONS OF SUPERINTENDENT OF PUBLIC INSTRUCTION CONTAINED IN SCR-2 REPORT, SEPTEMBER 7, 1972

RECOMMENDATIONS--SECONDARY VOCATIONAL PROGRAMS

Recommendations are as follows:

1. That excess costs, as they pertain to vocational education, be defined. A determination should be made as to whether "excess costs" are those funds in excess of funds available to a district by the distribution formula, excluding the .2 factor, plus federal funds, or if "excess costs" are the costs of vocational education that are greater than the secondary non-vocational costs of the individual school district.

2. That the approval of the vocational education program of a district be on the basis of a total planned program that meets the requirements of the State Plan for Vocational Education.

3. That vocational education programs be funded on an eligible program cost reimbursement basis.

4. That existing standards for vocational education programs be expanded to include standards for the funding of excess costs. Such standards might provide:
    a. A basis for determining allowable levels of direction, supervision, guidance and counseling.
    b. Maximum and minimum teacher-pupil ratios allowable for each service area of vocational education.
    c. Maximum and minimum class hours for vocational classes.
    d. Provisions to insure acceptable teaching schedules--extended contracts where necessary.

   e. Assurance of proper equipment for vocational classes and the maintenance of adequate inventory records of equipment.

   f. Maintenance of an accounting system adequate to use as a basis of funding.

   g. Other standards as needed to implement this change.

5. That the present .2 factor for approved vocational classes be continued through the 1973-74 school year and that secondary vocational offerings be approved and funded on a total vocational program basis beginning with the 1974-75 school year. (A minimum of one year would be required by the school districts and the Office of the Superintendent of Public Instruction to make this transition.)

6. That the funds currently generated by the .2 vocational factor be used beginning in 1974-75 to reimburse districts for excess costs of vocational education on a program cost reimbursement basis, if the present distribution formula is continued. If the decision is made to treat secondary vocational education as a categorical program, the recommended changes in the vocational education standards would make them appropriate for use in the total funding of vocational programs.

7. That an improved method of reporting vocational enrollment in districts operating on "modular schedules" be developed if per-pupil funding is continued.

RECOMMENDATION--VOCATIONAL-TECHNICAL INSTITUTES

It is the recommendation of this report that no immediate change be made in the method of providing state support to the vocational-technical institutes. However, it is recommended that the vocational-technical institutes prepare their biennial budget requests on a program budgeting basis. It is further recommended that if the biennial budget requests are prepared on a program budgeting basis that consideration be given to approving the offerings of vocational-technical institutes on a total program basis rather than on a class basis and to funding the total program of vocational-technical institutions on a program cost reimbursement basis.

CHAPTER 10

ORGANIZATION OF VOCATIONAL EDUCATION

Since the creation of the Coordinating Council for Occupational Education in 1967 (RCW 28B.50.160), there has been understandable concern regarding the effectiveness of a coordinating body between two educational delivery systems. The cited statute seems to envision the Coordinating Council's purpose as facilitating the greatest possible coordination and cooperation between educational agencies within the state and between those state agencies and federal government. The only effective power given to the Coordinating Council, however, was through "the preparation, adoption and certification of the State Plan for Vocational Education" which is the Plan required by the U. S. Office of Education to be eligible for federal vocational monies. Thus, the organization structure was a prominent inclusion for study in SCR-23.

Survey of Local Directors

The State Advisory Council decided to examine organizational structure from the point where services are delivered looking up into the structure rather than the traditional way of examining the organization from the top down. The approach was to interview vocational directors from common school districts, vocational-technical institutions and community colleges. The list of directors interviewed and the interviewing questions are found in Appendix 10A. All interviews were conducted by one skilled interviewer and the interviews averaged one and one-half hour in length. The intent was to identify problem areas in the minds of the local directors.

As one would imagine, a variety of problems was mentioned; however, there was consensus on the following:

1. Apparent inability of the Coordinating Council for Occupational Education to resolve conflicts between various delivery systems of vocational education.

2. Apparent failure on the part of the Coordinating Council to provide significant data on vocational training needs within our State.

3. Apparent lack of attention by the Coordinating Council in providing and updating curriculum guides.

4. Apparent failure on the part of the Coordinating Council to uniformly apply rules and regulations under the State Plan, or to adopt rules and regulations broad and flexible enough to allow uniform application as well as desired control.

5. Apparent lack of assistance from the Coordinating Council to small school districts in terms of:
    a. Knowledge of current vocational education needs, objectives, and policies.
    b. Knowledge of funding availability.
    c. Knowledge and technique of program development and proposal writing.
    d. Knowledge and technique of program evaluation.

A majority of the directors interviewed favored reorganization of vocational education at the state level, but there was no clear agreement on how or why.

Coordinating Council for Occupational Education Staff Reorganization

Recently the Coordinating Council for Occupational Education authorized its executive officer, Mr. Arthur Binnie, to proceed with plans to reorganize the Coordinating Council for Occupational Education staff. The plan for reorganization, according to Mr. Binnie, is designed to enable the effective discharge of nine areas of responsibility as identified by Coordinating Council for Occupational Education staff. These are shown in Appendix 10B. The new plan of organization is shown in chart form as Appendix 10C. Main purposes of the revised organization, according to Mr. Binnie, are to:

1. Emphasize curriculum development and performance standards.
2. Strengthen the quality assurance (auditing) function.
3. Elevate the importance of planning and forecasting.
4. Pull together special activities such as Research, MDTA and Fire Service Training.

The Coordinating Council is scheduled to approve the organization plan, undoubtedly, with some minor revisions over what is presented in Appendix 10C. It, therefore, is too early to determine the effectiveness of the reorganization plan. However, the first three purposes mentioned by Mr. Binnie do seem to address two major concerns pointed out by local directors.

The Educational Amendments of 1972

Public Law 92-318 says that a state shall establish or designate an existing agency to be a Postsecondary Education Commission. The State Commission shall develop a statewide plan for the expansion and/or improvement of postsecondary education programs in community colleges, including recommendations for the modification of state plans for federally assisted vocational education as they may affect community colleges. The federal requirement, obviously, inserts a new and unsought factor into the organizational question.

Section 1202 of the P.L. 92-318 says, "Any State which desires to receive assistance under section 1203 or Title X shall establish a State Commission or designate an existing State agency or State Commission (to be known as the State Commission) which is broadly and equitably representative of the general public and public and private nonprofit and proprietary institutions of postsecondary education in the State including community colleges (as defined in Title X), junior colleges, postsecondary vocational schools, area vocational schools, technical institutes, four-year institutions of higher education and branches thereof."

It is then obvious that no existing agency, as it is now constituted, would meet the above criteria.

APPENDIX 10A: LOCAL DIRECTORS/ADMINISTRATORS INTERVIEWED

APPENDIX 10A: LOCAL DIRECTORS/ADMINISTRATORS INTERVIEWED

Common School Districts

Janet Sweeney, Home and Family Life/Vocational Coordination, Marysville

Leslie Adams, Coordinator, Tri-Cities Area Occupational Education

E. Joseph Brisson, Director of Vocational Education, Northshore

Vocational-Technical Institutions

Lawrence Belka, Vocational Guidance Counselor, Bellingham Technical School

Fred Miner, Administrator for Vocational Education, Clover Park Education Center, Vocational-Technical Division

Robert Boyden, Planning Director, Lake Washington Vocational-Technical School

Community Colleges

C. A. Bradley, Vice-President of Occupational Education and Special Services, Seattle Community College

Alvin Danielson, Dean of Instruction, Spokane Falls Community College

Wayne Johnson, Dean of Instruction, Wenatchee Valley College

ORGANIZATION STUDY

INTERVIEWER QUESTIONS

1. What is the purpose of CCOE?

2. How does it relate to Superintendent of Public Instruction? To State Board for Community College Education?

3. Is the purpose of CCOE being met?

4. How does communication work between CCOE and the two operating agencies?

5. Describe your communications with SBCCE and/or SPI. With CCOE staff.

6. Are authorities and responsibilities clear-cut and defined?

7. Is it clear with whom you deal to get information, program assistance and program approval?

8. Do you get the type of state staff assistance and support you need to do your job effectively?

9. Will an organization change(s) alleviate problems you have described? How?

APPENDIX 10B: AREAS OF ACTIVITY AS IDENTIFIED BY COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION

1.0 Needs Analysis & Forecasting

- Forecasting (Based on Inputs from People Served, Industry, Labor, Advisory Groups, Community, Educational Institutions & Associations)
  - Needs of Clientele Served
  - Needs of Industry
  - Programs Needed to Serve the Needs
- Analysis
  - Impact of Programs on Meeting the Needs
- Planning
  - Development of Goals, Objectives, Activities & Budgets

2.0 Development & Coordination of Vocational Education Program

- Development & Testing of Instructional Materials
  - Occupational/Job Analyses & Competencies/Performance Standards: Liaison with Employers & Workers to Assure Validity
  - Guides & Other Materials Needed to Teach to the Competencies
- Development of Facilities & Equipment Requirements for Each Occupation
- Development of Personnel Requirements to Assure Quality in Each Field

3.0 Leadership Development

- Develop & Implement Inservice Vocational Teacher Education Programs
- Develop & Coordinate State Standards for Preservice Education for Vocational Teachers
- Develop State Standards for Maintenance of Occupational Skills for Vocational Teachers
- Develop & Implement Programs for Improvement of Administrator's Management Capabilities (Including CCOE Staff)
- Development of Vocational Philosophy & Competencies of All Education Personnel

4.0 Youth Leadership Development

- Develop Capabilities of Advisors of Vocational Student Organizations
- Develop Integrated Curriculum Materials so that Leadership Skills Are Developed within the Skill Development Curriculum
- Manage & Coordinate State Level Vocational Education Student Organizations
- Assist Regional & Local Youth Group Advisors in How to Manage Vocational Student Organization Activities
- Coordinate National, State & Local Vocational Student Organization Activities

5.0 Assurance of Quality

- Evaluation
  - Measures of Outcomes vs Objectives
- Auditing
  - Assuring Compliance & Accuracy of Reports
- Program Approval
  - To Assure Meeting Needs with Unnecessary Duplication & to Assure Quality
- Corrective Action
  - To Provide Assistance to Assure Correction of Deficiencies
- Certification
  - Certification of Personnel Meeting Minimum Qualifications

6.0 Administrative Services

- Personnel
- Facilities & Equipment
- Policies & Procedures
- Materials
- General Administration & Overhead

7.0 Fiscal & Statistical

- Disbursing Accounting
- Statistics & Reporting
- Information Services

8.0 Special Services

- Veterans Program Approval
- State Advisory Council (1)
- Research
- Handicapped
- Disadvantaged
- Innovative Programs

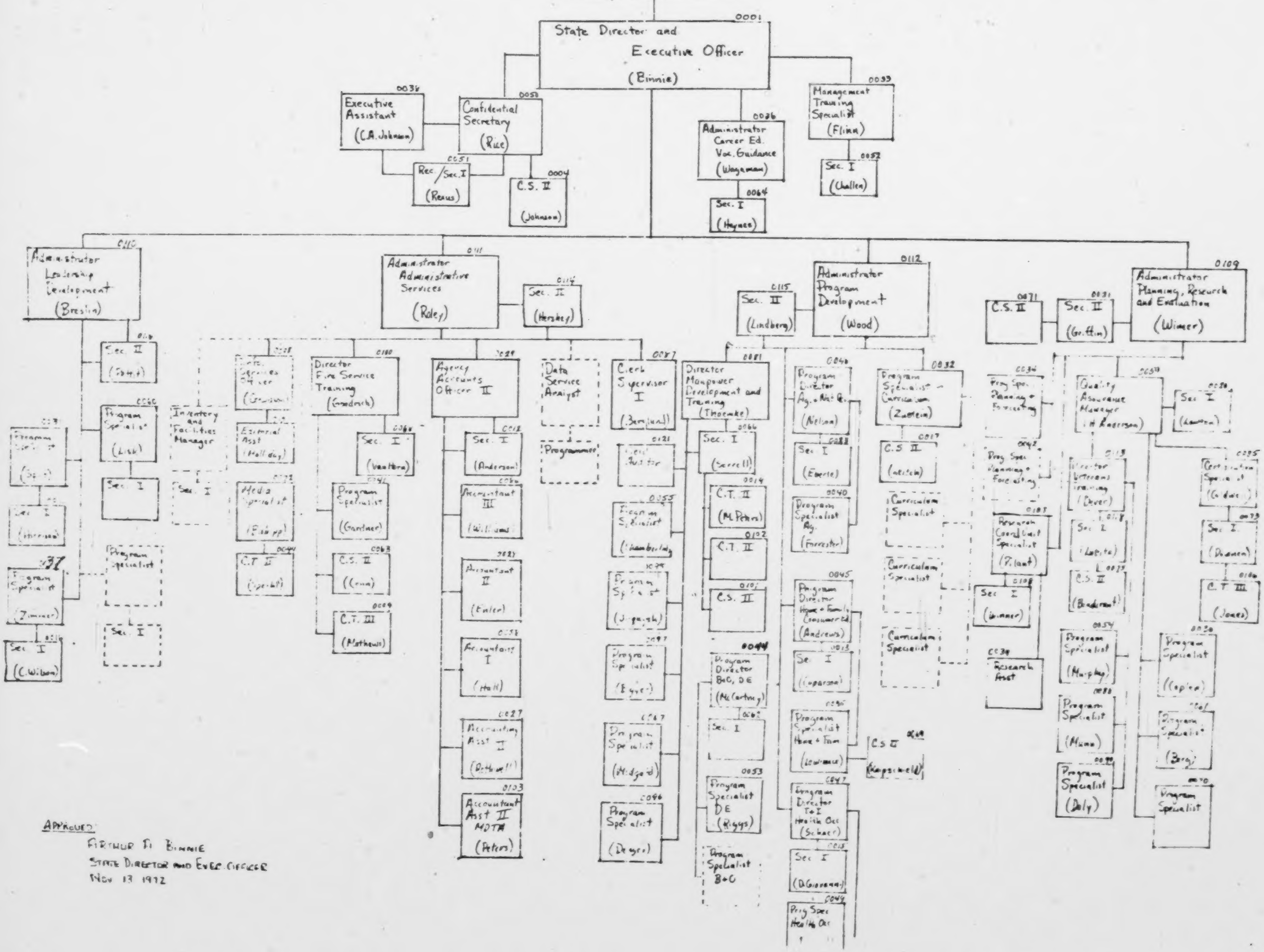
9.0 Instructional Program Operation

- Community Colleges
- Common Schools
  - Secondary Schools
  - Vocational Technical Institutions
- Proprietary Schools
- Colleges & Universities

(1) Fiscal Agent Responsibility Only

APPENDIX 10C: COORDINATING COUNCIL FOR OCCUPATIONAL EDUCATION PROPOSED STAFF REORGANIZATION

C.C.O.E.


0001
State Director and Executive Officer
(Binnie)
0036
Executive Assistant
(C.A. Johnson)
0050
Confidential Secretary
(Rice)
0051
Rec./Sec. I
(Rezus)
0004
C.S. II
(Johnson)
0036
Administrator Career Ed. Voc. Guidance
(Wageman)
0064
Sec. I
(Haynes)
0033
Management Training Specialist
(Flinn)
0052
Sec. I
(Challen)
0110
Administrator Leadership Development
(Breslin)
Sec. II
Program Specialist
(Lisk)
Sec. I
Program Specialist
Sec. I
Program Specialist
(Zimmer)
Sec. I
(C. Wilson)
Program Specialist
Sec. I
Inventory and Facilities Manager
Sec. I
0111
Administrator Administrative Services
(Roley)
0114
Sec. II
(Hershey)
Services Officer
Editorial Asst
(Holliday)
Media Specialist
C.T. II
0100
Director Fire Service Training
(Goodrich)
0068
Sec. I
(Vanttera)
Program Specialist
(Gardner)
0063
C.S. II
0009
C.T. III
(Mathews)
Agency Accounts Officer II
0012
Sec. I
(Anderson)
Accountant III
(Williams)
Accountant II
(Kinler)
Accountant I
(Hall)
0027
Accounting Asst II
(Bothwell)
0103
Accountant Asst II MDTA
(Peters)
Data Service Analyst
Programmer
0087
Clerk Supervisor I
(Bergland)
0121
0055
Program Specialist
(Chamberlain)
Program Specialist
Program Specialist
Program Specialist
(Midgard)
0096
Program Specialist
(Degree)
0112
Administrator Program Development
(Wood)
0115
Sec. II
(Lindberg)
0081
Director Manpower Development and Training
(Thoemke)
0066
Sec. I
(Serrell)
0014
C.T. II
(M. Peters)
0102
C.T. II
C.S. II
0044
Program Director B&C, DE
(McCartney)
Sec. I
0053
Program Specialist DE
(Riggs)
Program Specialist B&C
0040
Program Director Ag. & Nat. Res.
(Nelson)
Sec. I
(Eberle)
0040
Program Specialist Ag.
(Forrester)
0045
Program Director Home & Family Consumer Ed.
(Andrews)
Sec. I
Program Specialist Home & Fam
(Lawrence)
C.S. II
(Kapsimeld)
Program Director T&I Health Occ
(Schaer)
Sec. I
(D. Giovanni)
Prog Spec Health Occ
0032
Program Specialist – Curriculum
(Zastein)
0017
C.S. II
Curriculum Specialist
Curriculum Specialist
Curriculum Specialist
0109
Administrator Planning, Research and Evaluation
(Wimer)
0031
Sec. II
(Griffin)
0071
C.S. II
Prog Spec. Planning & Forecasting
Prog Spec. Planning & Forecasting
0107
Research Coordinat Specialist
(Plant)
0108
Sec. I
Research Asst
Quality Assurance Manager
(H. Robertson)
Sec. I
Director Veterans Training
(Dever)
Sec. I
(Labita)
0075
C.S. II
(Bradamant)
0054
Program Specialist
(Murphy)
Program Specialist
(Mann)
Program Specialist
(Daly)
0095
Certification Specialist
Sec. I
(Dranen)
C.T. III
(Jones)
Program Specialist
Program Specialist
(Berg)
Program Specialist

APPROVED:
ARTHUR R. BINNIE
STATE DIRECTOR AND EXEC OFFICER
NOV 13 1972